

# The Contemporary Arranger

by **Jon Sebesky**

3 - 7 inch 33 1/3 RPM RECORDS  
included in hardcover edition. Records also  
available separately from the publisher (see pages viii and ix).



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*This book is respectfully dedicated to all those professional arrangers  
whose work has been an inspiration to the author,  
and to students everywhere,  
for whom, it is sincerely wished,  
this volume will prove equally inspiring.*

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# fecordec | txamples

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## About The Author

Don Sebesky started working as an arranger and composer with Creed Taylor over ten years ago, when the latter was still at Verve Records. Together, they created the semi-symphonic musical aura—the "CTI sound"—that helped propel Wes Montgomery and many jazz artists ailer him onto the pop charts. And together, they have in many ways changed the course of contemporary music.

Sebesky likes to keep a low profile. "I have very little of the showman in me," he admits. "In fact, I find it very hard to communicate on the spot with an audience." This may explain why Sebesky, a major creative force in the industry, is still largely unknown outside of a select circle.

Born in New Jersey in 1937, he started his musical career at seven. "I wasn't a child prodigy in the true sense of the word," he says, "but I started early trying to play every musical instrument that I could get my hands on, just for the fun of it. I eventually settled on the accordion, which, as it turned out, was a good choice because it forced me to learn -t an early age a lot of harmony that I wouldn't have learned otherwise."

With his parents' encouragement, Don studied accordion until he went to high school. "Then, because i had to learn to play a band instrument, I simply dropped the accordion—anyway, I wasn't interested in it anymore-and I went from instrument to instrument until I finally settled on the trombone."

Don started performing with various bands while he was in college. "The first group I played with was called 'The Commanders.' It was a dance band, but they were playing a lot of original music. I was 17 and I was already arranging. In fact, I had been arranging since I was ten. When I was about seven, an aunt of mine gave me some old Glenn Miller records, and I recall listening to them and thinking about how the various sounds were made. After a while, it became a sort of osmosis: I could hear the overall sonic texture and know instinctively which sound would w^rk and which wouldn't. Then, of course, I learned the mechanics of each instrument, their ranges, etc. But it was a process of refining my own technique."

"As a matter of fact, I still recall vividly my very first arrangement. I probably could rewrite it today. It was just for a local band. We were playing those stock arrangements you could buy for a dollar and a half in music stores, and I kept thinking that it might be fun to sit down and write my own arrangements. It was like a gigantic crossword puzzle or a jigsaw with all the pieces that had to be put together."

Don's first major professional job after high school was with Kai Winding, in whose band he replaced Carl Fontana, attending at the same time the Manhattan School of Music. On weekends, he also played with Claude Thornhill and Warren Covington. A year later, in 1958, he became a member of the trombone section in the Maynard Ferguson band, also contributing arrangements with Slide Hampton and Willie Maiden. In 1959, he joined Stan Kenton for a year.

"I put the trombone away right after Kenton and never played after that," he says. "I started concentrating on writing, doing mostly freelance stuff. I had always enjoyed writing more than playing anyway. It seemed more important to put sounds down and find out what they were made of than actually playing the charts, because trying to come up with new combinations was a real challenge. Playing was always a means to an end. It got me into a band so I could write for it. In fact, once in a while, on the bandstand, when there was a long solo, I'd shut my mind to the music that was being played and study a score."

In 1961, Don met Creed Taylor. "I guess he had heard some things I had done that he liked; he asked me to do an album with Wes Montgomery. I carefully wrote some arrangements, and Wes was so intimidated by the inflexibility of it all that he just froze and never managed to play relaxed. So we threw everything out, and we started all over again, finally adopting the system which we still have, where the soloist has complete freedom to do whatever he feels is important with the rhythm section. Then, I tailor the arrangements around what he does, so I know he doesn't have to bend to me. What I do is listen to what he's done and hear what his motion is, and then I create melodies and sections to underline what he's already done. In other words, instead of leading him, he's the one who leads me."

The "system" was successfully applied to a variety of albums starring performers as diversified as Astrud Gilberto, Milt Jackson, Jim Hall, Freddie Hubbard, Paul Desmond, Stanley Turrentine, Jackie & Roy, George Benson and Chet Baker.

Sebesky shies away from the idea that his might be a formula sound. "I don't think that there is what you might call a Sebesky sound, at least not that I'm aware of," he says. "I think it's more a general attitude toward music, a willingness to blend various influences without worrying where they come from. I look at music the way I look at life; I have no preconceived ideas about either. I don't think I could ever be happy with just one sound—that would drive me crazy."

"There are so many things to be discovered, so many new sounds that I hear all the time. Music is a constant renewing process to me, and that's what I like so much about being an arranger."



# Preface

This book was written in response to numerous requests from young arrangers seeking practical advice on orchestrating for the phonograph record medium.

The author draws upon many years of experience in the field, having served as arranger-conductor for Dionne Warwick, Wes Montgomery, Carmen McRae, Herbie Mann, Peggy Lee, Roberta Flack, and many other top recording stars.

This experience was gained largely on a trial and error basis; a very time-consuming, and at times, frustrating situation. This book is designed to eliminate many of the problems confronting the young arranger who wishes to write for the recording medium, by illustrating in scored and recorded examples those procedures that have proven most successful, and contrasting them with less desirable ones—a unique feature not found in any other instruction manual. Many of these examples are extracted from actual arrangements written for, and recorded by today's leading professional musicians.

This book does not purport to be a treatise on composition or harmony (there are several fine volumes available that deal specifically with these), and will touch on these subjects only insofar as they relate to the art of creating a better arrangement.

# Acknowledgments

The Author wishes to thank the following people without whose invaluable assistance this volume couldn't have become a reality:

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# CHARTER ONE • Basics

There are four basic factors that are essential in the construction of a good arrangement: Balance, Economy, Focus, and Variety.

## BALANCE

1. *Tonal balance*, the proper distribution of tones in order to achieve the best possible sound with any given combination of instruments. (Discussed thoroughly in Chapters Two and Three.)

2. *Formal balance* can be achieved through meaningful well-coordinated manipulation of three basic elements—*melody*, *instrumentation*, and *time*.

a. **MELODY**—As a general rule the arranger should try to restrict himself to as few melodic ideas as possible, whether they are derived from the song itself or composed by the arranger in deliberate contrast. When the need is felt for a fresh melodic statement, it's advisable to try a variation on a motive already used before injecting a new one. This is directly related to the principle of *economy* discussed below. This will give your arrangement unity and help to eliminate confusion. One arranger who is especially adept at applying this principle is Bill Holman; his charts always seem to grow organically from the initial melodic germ. For a thorough discussion of the uses of melody see Chapter Six.\*

b. **INSTRUMENTATION**—The distribution of instrumental sounds has a great influence on the formal balance of an arrangement. The tendency in young arrangers is to use everything available in the first chorus—this leaves no room for development or surprise. Consider recorded example No. 1, an excerpt from a Jackie Cain/Roy Kral record, "Time and Love" (CTI 6019). In this arrangement, the only instruments used in the first 23 bars were electric piano, bass, drums, harp, and vibes. At the bridge, there was a temptation to bring in the strings; instead, the organ was introduced, playing sustained chords, lending just enough weight to enable me to delay the entrance of the strings until the second chorus. Here they begin to play the famous chorale figuration from Bach's *Cantata No. 147*. Had the strings been used earlier, the surprise effect of the entrance of this beautiful melody would have been completely negated. To achieve maximum effectiveness from a group of instrumental colors, the arranger must learn to distribute them judiciously throughout his score.

c. **TIME**—The proposed length of a record—from a two-and-a-half minute single to a 35 minute free-form piece taking up both sides of an album—makes specific demands on all other basic elements and will (and should) have a profound effect on the formal balance of a score. The arranger must have some idea of the time restrictions he faces before he can begin to write purposefully and realistically.

2- Concerto  
1- Fugue  
3- Significativo

## ECONOMY

Economy is the art of omitting from your score anything which is not absolutely necessary. Ideally, every note in an arrangement should be there for a specific reason, making a legitimate difference to the score as a whole. If it does not fulfill this requirement, it should be erased.

Sometimes, a melodic figure or voicing may look great on paper, but when played in the studio will sound wrong for some reason.

Such was the case with the following example. The original score looked like this.

## EX. 1

PLAY 4 TIMES

(CONCERT PITCH)

ALTO FLUTE NO VIB. mp

FLUGELHORN 1

FLUGELHORNS 2 3 NO VIB. mp

TROMBONES 1 2 NO VIB. mp

BASS TROMBONE mp

PIANO SOLO AD LIB. D Em7-5 E7 Em7-5

BASS D PEDAL

In this four-bar vamp, the horns are playing a very simple background behind the piano solo. After a few playings, I realized the top trombone line (F#, G, G#, G^ ) was, instead of enriching the passage, actually detracting from its effectiveness. By eliminating it, two things were accomplished: 1) The contrary motion of the remaining voices became more evident, thus more interesting, and, 2) the lower-middle register was lightened, enabling the piano, which is the most important element (see following discussion on "focus") to dominate a little more noticeably.

No matter how sensitive an arranger is, there will be times when he will misjudge a voicing or effect. This is to be expected. If such were not the case, it would mean he had stopped experimenting and had become content to use and reuse only those voicings that had worked before and would work again. This attitude must be avoided—it means the end of growth. Another attitude to be avoided is the one in which an arranger treats every note he writes as if it were sacred. Always be prepared to cut something from your score at a moment's notice if it proves to be unsuccessful, unnecessary, or unplayable—especially if you want to work in the recording field. The importance of the principle of economy cannot be overemphasized. Sometimes "*Less Is More.*"

### FOCUS

At any given point in an arrangement, there is an element which is, temporarily at least, more important than any other; it becomes the center of *focus*. It may be a vocal or instrumental soloist, a section of the ensemble (saxes, trombones, strings) or the whole ensemble itself. The human ear is capable of integrating a given input and unconsciously assigning varying degrees of importance to several separate aural elements. There are limits to this capability, however. Improper focus can lead to confusion on the part of the listener—losing his interest. It is the arranger's job to see that the listener's ear is directed to the primary element and not diverted or confused by an overbusy background or counter-line.

Recorded example No. 2 will demonstrate this principle. The principle of focus is constantly operating in music—not always, however, in a manner as obvious as in this recorded example.

This chart illustrates the distribution of focus at a given point in a hypothetical arrangement.

PRIMARY FOCUS LEVEL—soloist (trumpet, sax, etc.)

SECONDARY FOCUS—background (sax section, strings, etc.)

TERTIARY FOCUS—rhythm section

A. *BASS*

B. *DRUMS*

1. *bassdrum*
2. *hi-hat*
3. *cymbals*
4. *snare*
5. *tom tom*

C. *GUITAR*

D. *PERCUSSION* (*conga, cabassa, etc.*)

E. *PIANO*

This distribution is never static, but is constantly shifting as the chart progresses. The rhythm section can, and often does, rise to the secondary level. The background can absorb the soloist and rise to the primary level temporarily (as in recorded example No. 2) or descend to a tertiary level. It is necessary for the arranger to understand this principle of focus and manipulate his ensemble accordingly.

Obviously, the consideration of focus relates as much to the proper recording of an arrangement as it does to the writing of one; this aspect of it will be discussed in Chapter Eight. However, the more aware an arranger is of the importance of this principle before he puts pencil to paper, the better equipped he will be to write only those notes which will contribute to a successful recording.

## VARIETY

The art of maintaining listener interest through the use of constantly changing instrumental combinations is called tone color or *timbre variety*. In any given instrumental ensemble, whether it be string quartet, brass quintet, harmonica duo, symphony orchestra, or any combination in between, there exists a considerable number of tone colors available to the arranger. Naturally, he won't want to use them all in one arrangement (though some have tried), he will only use those combinations which will best serve the overall purposes of his score.

When I began writing for recordings, I had the good fortune to work with Hugo Montenegro, now well known for his best-selling records and film scores. Hugo had a system for achieving variety in an arrangement. After he had determined the ensemble to be used for a recording, Hugo would make a list of all the sound combinations possible with that ensemble.

A typical list would read as follows:

8 Violins

Harp

3 Trumpets

3 Trombones

1 French Horn

4 Reeds (doubling saxes, clarinets, flutes, etc.)

Bass

Guitar

Piano (doubling organ and celeste)

Drums

## A. Brass Possibilities

1. Full tutti
2. Full tutti cup mutes
3. Full tutti straight mutes
4. Full tutti trumpets in harmons, trombones in cups
5. French horn lead over trombones
6. Horn lead over trumpets and trombones in hats
7. 3 trombones with horn voiced inside
8. Tutti in hats-low register, quasi horns
9. Trumpet in harmons, trombones open, guitar doubling melody an octave lower (Les Brown)

## B. Reed Possibilities

1. 4 saxes unison (Billy May)
2. 4 saxes close voicing
3. 4 saxes open voicing
4. 3 saxes with clarinet lead (Glenn Miller) with trombone voiced inside
5. 4 clarinets unison (Claude Thornhill)
6. 4 alto flutes unison, low register (Henry Mancini)
7. 4 tenor saxes (Woody Herman-Four Brothers voicing)

## C. Brass and Reed Combinations

1. Shouting big band sound—open brass, 4 saxes
2. Cup muted brass, with piccolo doubling lead 8 va
3. Trumpets in harmons, lead doubled with flute 8 va (Quincy Jones)
4. 4 clarinets above low brass in hats (Claude Thornhill)
5. Trumpets in cup mutes doubled with clarinets

We haven't even listed the string and rhythm combinations, but as you can see, the possibilities are extensive indeed. I prefer to work in a more intuitive manner. But this orderly system certainly worked for Hugo, and it might work for you, if you have the type of imagination which is triggered by having such a list before you to refer to when you're stuck for a fresh idea.



Some arrangers like to write a complete detailed sketch of the lead lines and harmony from beginning to end; then assign these various melodies to those instruments to which they best lend themselves. As an example, the following sketch: (Ex. 2) could conceivably be orchestrated this way: (Ex. 2A). Find a way to achieve timbre variety which best suits your personality.

EX. 2

MELODY- ENG. HRN. FLUTE!

STRGS. HARP

EPm<sup>6</sup><sub>9</sub>

*j C P f -*

VLNS. TREMOLO

FLUTES

Am<sup>7</sup>Ma<sup>9</sup> Am<sup>6</sup> B<sup>b</sup>-9<sub>SUS 4</sub> Eb<sup>7</sup> Eb<sup>9</sup><sub>SUS 4</sub> Eb<sup>13</sup> Eb<sup>7</sup> Eb<sup>9</sup><sub>SUS 4</sub> Eb<sup>13</sup>

Ma<sup>13</sup>

The musical sketch consists of two systems of staves. The first system includes staves for MELODY- ENG. HRN. FLUTE!, STRGS. HARP, and a bass line. The melody line features a series of notes with slurs and accents, including a triplet of eighth notes. The harmonic accompaniment includes chords such as EPm<sup>6</sup><sub>9</sub>, Am<sup>7</sup>Ma<sup>9</sup>, Am<sup>6</sup>, B<sup>b</sup>-9<sub>SUS 4</sub>, Eb<sup>7</sup>, Eb<sup>9</sup><sub>SUS 4</sub>, and Eb<sup>13</sup>. The bass line includes a triplet of eighth notes. The second system includes staves for VLNS. TREMOLO and FLUTES. The violin section features a tremolo effect, and the flute section features a series of notes with slurs and accents. The harmonic accompaniment includes chords such as Am<sup>7</sup>Ma<sup>9</sup>, Am<sup>6</sup>, B<sup>b</sup>-9<sub>SUS 4</sub>, Eb<sup>7</sup>, Eb<sup>9</sup><sub>SUS 4</sub>, and Eb<sup>13</sup>. The bass line includes a triplet of eighth notes.

**EX. 2A**

This is a page from a musical score, likely for a symphony orchestra. The page is numbered 1 through 7 at the top. The instruments listed on the left side of the page are:

- 12 VIOLINS
- 4 CELLI
- HARP
- FLUTES 2
- B. CLAR.
- ENG. WD.
- 3 HORNS IN F
- GUITAR (ELEC.)
- CELESTE
- BASS
- DRUMS

The score includes various musical notations, including notes, rests, and dynamic markings such as *mp* (mezzo-piano), *mf* (mezzo-forte), *p* (piano), and *f* (forte). There are also performance instructions like "CHOP", "SWEETLY", "PULL", and "TIE MUTE". The notation is written in a standard musical staff format with a key signature of one flat (B-flat) and a time signature of 4/4.

*Harmonic variety* is another important objective. I usually try to avoid harmonizing a melody the same way twice, whenever possible. Ex. 3 and Ex. 3A illustrate different harmonizations of a melody that still arrive at the same resting place.

## EX. 3

Am Am<sup>#</sup>7 Am7 Am6 Dm7 G<sup>9</sup><sub>sus4</sub> G<sup>8</sup> Gm7 C<sup>#</sup><sub>sus4</sub> C7-9

FMa7 B<sup>b</sup>3 Em7 E Am7 C7(9) 0 9<sup>^</sup>7 9 CMa9

*f* *T* *r*

## EX. 3A

Fm7 Em FM B<sup>b</sup>3 Fm7-5 B<sup>b</sup>3 A7-9 A7-9

F<sup>#</sup>m7 Fm6 Err<sup>^</sup>E Amr A<sup>b</sup>m9 D<sup>b</sup>13 CMa9

*f* *W* *f*

Try to be aware of harmonic substitutions and use them whenever you feel the need for a little lift in a musical phrase.

Harmonic and tone color variety will help to give your arrangement vitality and avoid unnecessary repetition which can lose the listener's interest.

These four basics, Balance, Economy, Focus, and Variety, combine to form the underlying foundation of any good arrangement. Keep them in mind constantly.

## CHAPTER TWO \Mnd Instruments

0^"•iiCH

Every arranger I know has begun his career by scoring for a wind ensemble of some kind; usually a dance band or jazz group consisting primarily of brass and reed instruments. So I feel it's a good idea to begin our discussion of orchestral voicing with those instruments with which the average student is most familiar—the winds. First, let's consider the brass.

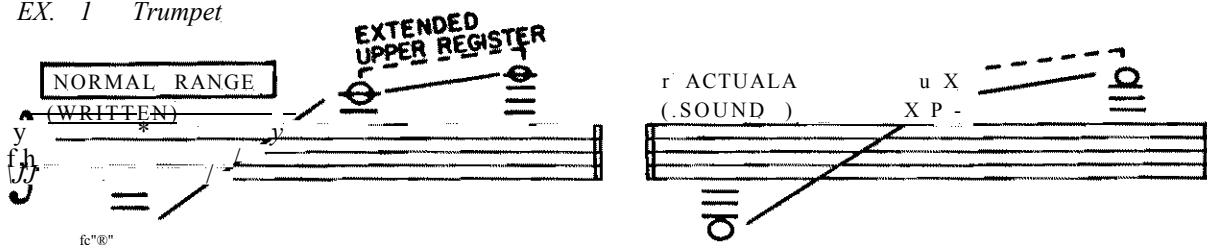
### PART ONE: BRASS

The brass is the easiest group of instruments to write for. Unlike many reeds, all brass instruments blend well together in just about any combination. They have tremendous power and dynamic flexibility in every register, and with the possible exception of the French horn, are normally quite easy to record.

#### TRUMPET

The trumpet is a transposing instrument, pitched in B $\flat$ , and written a whole step higher than its actual concert sound.

#### EX. 1 Trumpet



All trumpet players are capable of playing the full normal range of the instrument. Only very strong lead players will be reliably consistent in the extended upper register; a few high note specialists can go as high as:

(8VA)Q



In most recording situations, the trumpet is rarely called upon to play higher than the normal range.

As a separate section, trumpets sound best in *unison*, *octaves*, or in *close position voicing* (within the span of an *octave*), either open or muted.

Here we have a simple swing phrase for a section of four trumpets voiced in close position.

EX. 6

[4 TRUMPETS IN CLOSE VOICING]




\* ALTHOUGH WRITTEN AS 8<sup>TH</sup> NOTES, THESE FIGURES WILL ALWAYS BE PHRASED AS TRIPLETS J\*} BY JAZZ MUSICIANS. THIS APPLIES TO ALL SIMILAR EXAMPLES THROUGHOUT THE BOOK.

This passage would be equally effective played open or muted. All Professional recording trumpet players carry with them a *straight mute*, *cup mute*, *harmon mute*, *felt hat*, and sometimes *zplungex*. Any other special mutes (*solotone*, *bucket*, *buzz mute*, *derby*, etc.) must be requested in advance of a recording session.


Three articulations indicated in example 6 are important. They apply to all wind instruments.

1. A line over a note  indicates it is to be given its full value.


*Handwritten musical notation example for item 1*

2. A dot over a note  indicates it is to be clipped short, given less than full value.


*Handwritten musical notation example for item 2*

3. A curved line leading up to a note  indicates the note is initially played a bit flat and "scooped" or "bent" upwards to the true pitch. This marking can also be used between and after notes.


*Handwritten musical notation example for item 3*

4. An inverted V  indicates a forceful attack of a note falling on a downbeat.

*Handwritten musical notation example for item 4*


5. A sideways V over a note  indicates a forceful attack of a note falling on an upbeat.


*Handwritten musical notation example for item 5*

6. A sideways S between two notes  [s called an *appoggiatura*-indicating the player is to rise quickly above the first note and back down to it before descending to the second note.



This is especially effective on brass instruments.



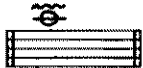
7. A combination of (1) and (5) over a note  indicates it is to be both attacked and given its full value.

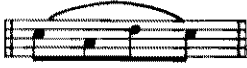
8. A line descending to a note  is called a *rip* or a *lip gliss.* It indicates a short, undefined downward thrust terminating on the desired note. It is also used leading up to a note. (See example No. 43.)

6\*Jlf / do cl\* valor in 64? - / AS .  
na nota de queda. >whx. note fiki SS> GO\*

9. A curved line descending from a note  is used to indicate a *short drop* or *fall-off*. A wiggly line descending from a note indicates a *long drop*  These two markings

are often used interchangeably; to avoid confusion, the desired effect should be clearly designated.

10. A wiggly line over a note  is used to indicate a *shake*. Shakes can vary in speed and should also be clearly labeled.

11. A curved line over two or more separate notes  is called a *slur*. It indicates the notes are to be played in a smooth connected line, usually in one breath.

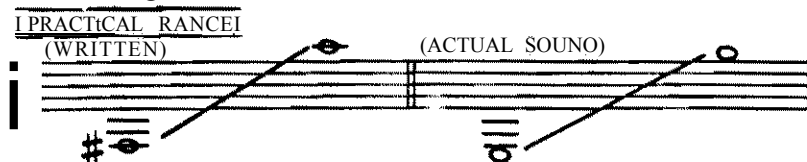
*f*  
C O O - O - A t ^



The *cornet* is exactly like the trumpet in transposition, range, and flexibility, but its tone quality is mellower and a bit withdrawn, making the instrument more useful for subtle solo passages than concerted brass ensemble chords.

Most recording trumpet players double on *flugelhorn* (Ex. 19). Like the trumpet and cornet, it is also pitched in B $\flat$ . It has become, in the last few years, a very popular recording instrument. While it lacks the range and power of the trumpet, it projects a warm, intimate sound which is very effective when used as a solo obligato or in unison. This instrument is always played open, never muted.

EX. 19 *Flugelhorn*



I have found flugelhorns voiced in *clusters* (very close position) over four trombones or baritone horns (especially with no vibrato) to be a successful recording sound.

EX. 20

(CONCERT KEY)

4 FLUGELHORNS

4 BARITONE HORNS

mp

G<sup>9</sup> sus4 C $\sharp$  nr C m $\sharp$  F $\sharp$  I

B $\sharp$  m $\sharp$

nti

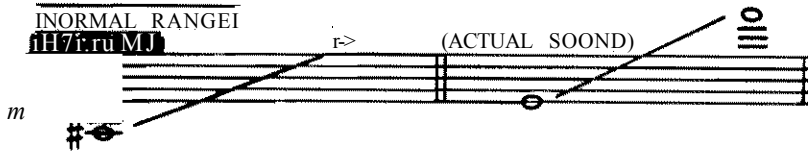
The image shows musical notation for 4 Flugelhorns and 4 Baritone Horns. The Flugelhorn part is in treble clef with a key signature of one sharp (F#). The Baritone Horn part is in bass clef with a key signature of one flat (Bb). Both parts are marked 'mp' (mezzo-piano). The notation includes a cluster of notes and a large 'nti' (no time) marking. Chord symbols G<sup>9</sup> sus4 C $\sharp$  nr, C m $\sharp$ , F $\sharp$  I, and B $\sharp$  m $\sharp$  are written below the notes.

For an aural demonstration of this cluster sound, listen to recorded example No. 3, a short excerpt from a piece entitled "Free As A Bird" from my "Giant Box" album (CTX-6031/32).

I usually try to avoid having flugelhorns play louder than *mf*; above this volume they lose their charm and effectiveness and can also encounter intonation problems.

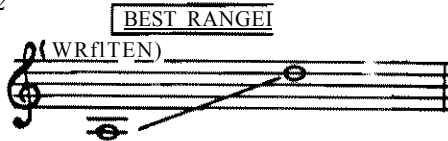
The B♭ *piccolo trumpet*, sometimes also referred to as *Bach trumpet* is, as the name implies, a small high-pitched member of the trumpet family (Ex. 21) useful in arrangements calling for a special baroque or medieval color.

EX. 21 *Piccolo Trumpet*



It is a difficult instrument to control and only a few trumpet players have achieved any degree of consistency with it. The most effective range for this instrument is shown in example No. 22.

EX. 22





## EX. 26

[POSSIBLE]



[IMPOSSIBLE]



The only real difficulty in technical execution lies between those low notes available only in the first and second positions and those available only in the sixth or seventh positions (Ex. 27); the player's arm has to move too far to execute this kind of figure with any degree of fluency.

## EX. 27

( AWKWARD-VERY DIFFICULT IF PLAYED IN FAST TEMPO )

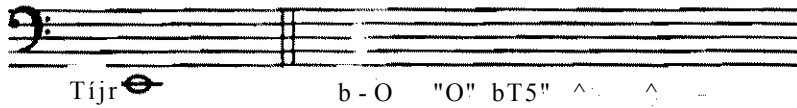


The *valve trombone* is, theoretically, capable of producing the same results as the slide trombone (with the obvious exception of the slide glissandos), but it generally lacks the bite and power of that instrument, especially in the low register.

The *bass trombone* is constructed with additional tubing, operated by triggers in the left hand which, when depressed, enable the instrument to produce those tones between the lowest note in the tenor trombone's normal range and the pedal Bb.

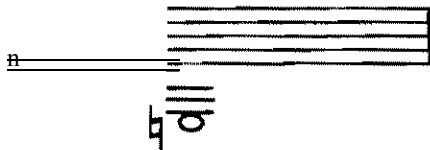
EX. 28


( AVAILABLE ON BASS TROMBONE )



The trigger mechanism also considerably alleviates the difficulty in passages such as those illustrated in Ex. No. 27. The large bore of this instrument gives it great depth and power in the extreme low register, making all pedal tones playable all the way down to low E.

EX. 29



A bass trombone, when playing in its lowest normal register (F down to pedal Bb) gives a brass section a powerful, biting attack. While most bass trombonists are perfectly able to play as high as  or even

EX. 30



higher, there should be no reason to write the instrument higher than

EX. 31



In addition to its normal function as the bottom of a section or ensemble, the bass trombone can be very effective in a solo role, providing a novel color, especially when deliberately contrasted with strings or woodwinds.

As a section, trombones sound excellent in unison, octaves, and are equally sonorous when voiced in either close or open position. Example No. 32 illustrates a passage in close position voicing typical of the ballad style made famous by Glenn Miller and Tommy Dorsey. This lush phrase would sound excellent played either open or muted.

EX. 32

**CLOSE POSITION VOICING**  
( PLAYED WITH A FAIRLY FAST SLIDE VIBRATO )

Ali recording trombonists carry with them a *straight mute*, *cup mute*, *felt hat*, and usually a *plunger*. Any other mutes (*harmon mute*, *solotone*, *bucket*, *derby* etc.) must be requested in advance of the recording session.

Stan Kenton's five-man trombone section, voiced in open position (also referred to as "spread voicing") created one of the great jazz orchestral sounds of our time.

EX. 33

**OPEN POSITION VOICING**  
PLAYED WITH A MIXTURE OF NO VIBRATO  
AND FAIRLY SLOW LIP VIBRATO

\* THE LITTLE COMMA MARKING BEFORE THE LAST BAR INDICATES A BREATH IS TO BE TAKEN.

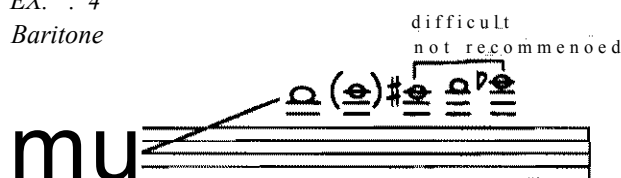
Some trombonists double on *baritone* (sometimes referred to as baritone horn) an instrument used in marching and concert bands, with a range identical to that of the trombone, but projecting a less brassy, somewhat "stuffy" sound—somewhere between that of a valve trombone and a tuba.

In a solo obligato role, the baritone creates a wistful "sad clown" feeling. Burt Bacharach has used it in this way with good results.

A section of baritones can be very mellow, but as with the flugel-horns, the register and volume must be carefully controlled to avoid intonation problems. The most useful and effective range for this instrument is shown below.

EX. : 4

Baritone



A very similar instrument, often confused with the baritone (though, in reality, the closest member of the tuba family) is the *euphonium*. It has approximately the same sound and fulfills the same function as the baritone, but is constructed differently—with two separate bells (producing two slightly different tone colors) and with four valves instead of three, giving the euphonium a tonal compass identical to that of the bass trombone. (See Tuba, Page 30, Ex. 44).

## FRENCH HORN

The horn is the problem child of the brass section. It is a difficult and unpredictable instrument, as any French horn player will tell you. Because of its conical bore it does not project a "pointed" sound as do the trumpet and trombone; instead, it has a diffused, "spreading" sound which gives it its unique color but also makes it harder to be heard in loud brass ensembles.<sup>1</sup> This spreading effect also makes the horn "speak" (emit its sound) a little late, creating a time problem when the horn is combined with other brass in highly syncopated or staccato passages, especially those which must be phrased with a relaxed jazz feel. There are some horn players with jazz experience who have learned to adjust their playing to overcome this difficulty.

The accoustical properties of the horn can activate sympathetic vibrations in the recording studio, sometimes creating "mysterious noises," which give the engineers nightmares.

Despite these difficulties, the French horn is widely used for recordings because of its extremely beautiful sound. No other instrument produces a tone quite so haunting or melancholy.

The French horn is a transposing instrument pitched in F (Ex. 35) and is therefore written a perfect fifth higher than its actual sound. Most notes are written in the treble clef. The bass clef is used for those notes which descend below G on the horn (C concert). The arranger will only change clefs if the passage is long enough to justify it.

## EX. 35

## French Horn

The musical notation for French Horn in Example 35 consists of two staves. The left staff is a grand staff (treble and bass clefs) showing written notes. Above the staff, the text "EXTENDED RANGE" is written, with a bracket indicating a range of notes. Below the staff, the notes are labeled with letters: "T", "F", "N", "R", "A", "N", "O", "F", "J". The right staff is a single staff (treble clef) showing the actual sound of the instrument. Above the staff, the text "(ACTUAL SOUND)" is written. Below the staff, the notes are labeled with letters: "T", "F", "N", "R", "A", "N", "O", "F", "J".

1. A trumpet or trombone playing *mf* or louder has approximately twice the power of a French horn.
2. For some illogical reason, it became a common practice (especially in pre-Twentieth century music) when scoring the horn in bass clef, to write the notes a fourth *below* their actual concert pitch instead of a fifth *above*, as in the treble clef. This practice is extremely confusing and unnecessary—it is to be avoided.



Pedal tones below written low C (concert F) are possible (Ex. 36). However, their practical use is limited to isolated long held chords, usually in a final cadence, where the arranger wants a pure horn sound to pervade the entire voicing, instead of mixing it with other instrumental colors.

## EX. 36



The French horn is unique in that it is the only brass instrument that sounds best when played with no vibrato. Its plaintive sound makes it extremely valuable as a solo obligato voice in any surroundings. Two, three, or four horns voiced in unison can be very effective and dramatic; especially when playing/or *ff* in the high register.

As a section, horns sound best when voiced in close position.

## EX. 37

AS WRITTEN FOR HORNS —  
SOUNDS A FIFTH LOWER

Henry Mancini has used a section of four horns beautifully in his recordings, voicing them in close position—sometimes in *clusters* (very close position incorporating several adjacent seconds)—over four trombones, all playing with no vibrato, creating a gorgeous, glowing sound ideally suited for ballad melodies (Ex. 38). In this passage, you will notice the four horns sometimes condense into two or three lines and sometimes overlap the trombones. This does not affect the smoothness or homogeneity of the overall sound and will not be noticeable.

EX. 38

4 HORNS (CONCERT PITCH)

4 TROMBONES (SOUNDS AS WRITTEN)  
(NO VIB.)

French horns blend well with all woodwind instruments, especially in a recording situation (Ex. 39, see also example 69-Thornhill sound). Horns can also be very effectively combined with low strings. (See Chapter Three, example 214).

## EX. 59

## CONCERT SKETCH (SOUNDS AS WRITTEN)

2 HORNS  
1 CLARINET  
2 BASS

The "spreading" effect we mentioned earlier has a positive side; it creates a kind of glow over a chord voiced for horns, making it sound complete and self-sufficient even when all the notes of the chord are not actually being played—especially in the rich middle register (Ex. 40). In most recording situations, the same three notes voiced for trombones or saxophones would be unacceptable, giving the listener the distinct impression that something was missing.

## EX. 40

NO 7TH NO ROOT  
NO 5TH NO ROOT  
NO 5TH NO ROOT  
NO 5TH NO ROOT  
NO 7TH NO ROOT  
NO 5TH NO ROOT  
NO 9TH NO 5TH  
NO 11TH NO 5TH

GUITAR  
BASS (ACTUAL SOUNDS)

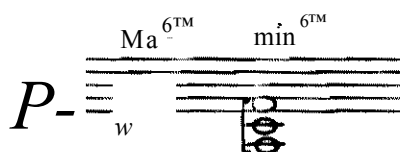
Chords:  $Fm^9$ ,  $Am^7$ ,  $Db^7$ ,  $Ab$ ,  $Db^9$ ,  $Gm^7$ ,  $C^9$  SUS 4,  $G^7+9$ ,  $G^b7$ ,  $Fm^9$ ,  $F$ ,  $A$ ,  $Am^7$ ,  $Abm^7$ ,  $Db^9$ ,  $Gm$ ,  $Gm\sharp^7$ ,  $Gm^7$ ,  $C^9$ ,  $G^b13$ ,  $G^b7$ ,  $F13$  (NO 11)

This kind of incomplete chord voicing for three horns is a very useful device for the recording arranger, especially in scores which demand a light, uncluttered feeling. In arrangements featuring strings, a section of three horns can provide just the right touch of contrast without adding unnecessary weight.

As you can see in example No. 40, the most prominent note in the lead voice is the *fifth* of the chord. The sound of the fifth on top gives the voicing an unobtrusive quality which is necessary for successful *background* writing. Notice, also, the most prominent notes in the other two voices are the *third* and the *seventh*. These are strong chord tones which give the overall voicing body and resonance.

In this kind of voicing, the arranger should, as much as possible, maintain the interval of a *major or minor sixth* between the top and bottom horns.

EX. 41



This gives the voicing mellowness and sonority. The bottom horn rarely descends below a written G below the staff (concert C)—the objective in this sound (unlike the bottom-rich sound illustrated in example No. 38) is to maintain a degree of aural distance between the horns and the sound of the string bass. This distance—from a fifth to two octaves—allows the horn sound to "breathe," and also allows the bass to resonate without interference in its own register, providing the bottom which is intentionally missing in the horn voicing above. This treatment of the bass in relation to other instruments is very important to the recording arranger, and will be discussed again in Chapters Three and Four.

In addition to the velvety texture one normally associates with the horn, there are other sounds and effects available which can be useful in special situations.

### *Stopped Tones*

The horn player uses his hand inside the bell to some degree even when playing normally or *open* in order to limit the vibration of the bell, and to correct and refine small inconsistencies in intonation on certain notes. When the hand is inserted deep into the bell of the horn, almost completely blocking the air flow, it is called *stopping* the tone. This effect is indicated by writing + over the note. If this sound is to be used for a long section, the arranger indicates *stopped* at the beginning of the section, and *open* at the point where the normal horn sound resumes.

The *stopped* horn sound is vague and distant in quality if the instrument is blown normally. A much more metallic and edgy sound is achieved if the horn is blown extremely hard while stopped, causing the bell to vibrate. To request this sound, the arranger writes "brassy" or "nasty" in addition to *stopped* on the horn part. This sound is quite similar to that produced by trumpets in harmon mutes or trombones in tight plungers, and can be used in conjunction with them in a punctuated passage. The resulting effect is highly dramatic (one frequently hears it in film scores) and should be reserved for appropriate occasions.<sup>3</sup>

Sometimes, instead of using the hand to stop the tone, the horn player will insert a *bali mute*, especially in registers where hand-stopping can create intonation problems.

### *Half Stopping*

Inserting the hand into the bell, but not completely blocking the air flow, results in a sound half-way between the normal open tone and the stopped tone. The arranger indicates this *half-stopped* effect by writing X over the note.

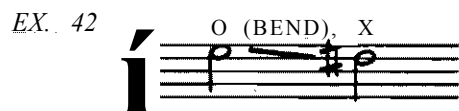
These techniques alter the pitch of the horn—full stopping raises it a half step, half stopping lowers it a half step. The professional horn player is fully prepared to make the necessary adjustments and the confusing technical details of this procedure need not concern the arranger.

The sound of the French horn can also be altered through the use of the *straight mute*. It produces a mellow sound resembling that achieved by a trombone playing in cup mute, and the two can be combined readily. The straight mute generally does not alter the pitch of the horn as stopping does, and consequently is preferable for passages in the low register (below written middle C) where stopped notes are unreliable.

3. It should be realized that this technique demands a great expenditure of energy from the horn player (he must blow *fff* to produce an *mf*), and the arranger must be careful when employing the *stopped* sound to allow ample resting space.

A *half-muted* sound is also possible. It is achieved by inserting the straight mute partially into the bell of the horn so as not to completely block the air flow. This effect is used primarily in the high register in very soft passages, enabling the player to blow a little harder than he normally could when open, yet maintaining a delicate, controlled sound.

A smooth glissando effect, called a *bend* or *hand slide* is possible on the horn. It is normally played at a fairly soft volume, in the middle to high register, and is achieved by blowing a note with the normal *open* sound, then inserting the hand into the bell until the pitch slides down a half step. It is notated this way.



The O over the first note indicates it is to be played open. The X over the second note indicates it is to be half-stopped. The horn player will not change his fingering for this effect, but the pitch will drop because of the change in hand position. To avoid confusion, it's a good idea to write in the word *bend* between the two notes.

The reverse order (half-stopped tone to open tone) creating an upward slide, is also possible, though not quite as satisfactory an effect. In all bends, the half-stopped tone will naturally be noticeably softer in volume than the open tone, because of the impeded air flow.

The upward *lip gliss* or *rip* is an extremely exciting sound, especially when played by many horns in unison. This effect is often followed by a *drop* or *fall-off*, especially when the primary tone is in the high register.



The horn effects discussed here will be demonstrated by Jim Buffington in recorded example No. 4.

## TUBA

The tuba is a non-transposing instrument scored in the bass clef. Tubas come in various sizes but the one most often used is the BB♭ tuba.

## EX. 44.

B♭ Tenor Tuba (Euphonium)

F Tuba (Bass Tuba)

(DIFFICULT)

BB♭ Tuba (Contrabass Tuba)

DIFFICULT NOT RECOMMENDED

3 E

7

♭ 75

PEDAL TONES NOT RECOMMENDED

PEDAL TONES DIFFICULT AND IMPRACTICAL

[ THERE ARE OTHER TUBAS, BUILT IN E♭ a C WHICH ARE RARELY USED AND NEED NOT CONCERN US HERE. ]

Because of its large bore, the sound of this instrument is round and slightly "spreading," very similar to that of the French horn, as contrasted with the more direct "pointed" sound of the trumpet or trombone. A block voicing combining four horns and tuba is very effective for ballad melodies.

## EX. 45

4 FR. HNS. (CONCERT PITCH)

TUBA (SOUNDS AS WRITTEN)

w

p

w

When used as the bottom voice in a mixed brass ensemble, the distinctive "spread" sound permeates the entire brass voicing, giving it an overall smoothness, unlike the more biting edge which results when a bass trombone or baritone sax is used.

The tuba is much more flexible than many arrangers realize. In the hands of an exceptional performer, it is capable of intricate passages of sixteenth-note runs, trills, and wide skips, as illustrated in this excerpt from a fugue I recently scored for brass ensemble.

EX. 46



+ THIS PASSAGE WOULD NORMALLY BE PLAYED ON THE B<sup>b</sup> TENOR TUBA OR POSSIBLY THE F TUBA. IT WOULD BE EXTREMELY DIFFICULT ON THE BB\* TUBA.

The tuba has been used successfully in many jazz recordings—most notably the Miles Davis "Birth of the Cool" album, and by Shorty Rogers and Jack Montrose in their fine "West Coast Jazz" recordings of the 1950's.

The tuba can be muted with a large cone-shaped mute which substantially muffles the sound, enabling it to blend surprisingly well with woodwinds.



## BRASS COMBINATIONS

The basic rule for voicing any combination of instruments can be stated thusly:

*Determine the kind of overall sound and feeling which best serves the needs of the passage you are scoring (should it be a big, powerful, open sound, or light and intimate?; should it be tight and pointed for maximum impact, or soft and mellow?; should it be voiced in a way which would permit rapid melodic motion, or should the vertical aspects of the passage be emphasized?; etc.) and then combine the instruments available to you in the way which will most successfully achieve the desired objectives.*

We will now examine several examples in which we apply this basic rule to the voicing of brass instruments.

In example 6 we analyzed a short swinging phrase voiced for four trumpets; we will use this as the basis for the following examples.

First, we'll add four trombones, showing how this phrase would be voiced for a full eight man brass section.

## EX. 47

(CONCERT KEY)

4 TPTS. *ij>185*

3 TENOR  
19H?

4 TBNS.

1 BASS TROMBONE BOBIO LINE )

^CM\*Em<sup>7</sup> A<sup>+</sup>E<sup>b9</sup>

QUIARI r / / /

BASS

2 3 4

5 6 7 8

(UNIS.) (DIV.) (SHORT DROP)

(I-III UNIS.) (DIV.)

D<sup>9</sup> A<sup>b9</sup>G<sup>9</sup> G<sup>13-9</sup> C<sup>6</sup> Dm<sup>7</sup> G PEDAL Em<sup>7</sup> D<sup>7</sup>m<sup>7</sup>-5 E<sup>7</sup> B<sup>b9</sup>A<sup>9</sup> A<sup>7</sup>+5 A<sup>7</sup>-9

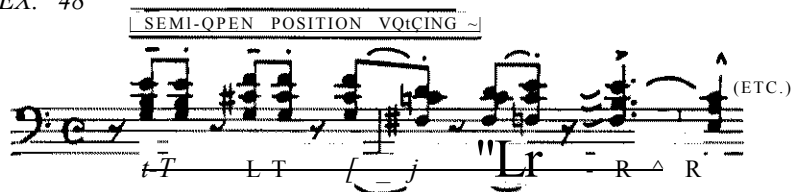
Dm<sup>7</sup> E<sup>o7</sup> Dm<sup>7</sup> A<sup>b9</sup> F<sup>8</sup> G<sup>9</sup> Dm<sup>7</sup> D<sup>7</sup>m<sup>7</sup> C<sup>6</sup> D<sup>b13</sup> Cma<sup>13</sup>

The first thing to notice is that I have given each individual instrument a line *as melodic as possible* within the chord structure. This is proper *voice-leading*, and will be discussed fully in Chapter Six.

Notice, also, that each *separate section* is voiced in such a way as to sound *complete within itself in addition to contributing to the overall sound of the brass ensemble as a whole*. This is very important, especially in recording, and will be mentioned again several times in this chapter-

The trombone section is voiced in *close* position, almost exactly doubling the trumpet section an octave lower, in order to insure maximum brilliance and mobility. Except for the last two chords, I did not spread the trombones in order to give the bass trombone the chord roots,

EX. 48



This is unnecessary in a swing passage of this kind, especially in a recording situation where the sound of the string bass is strong enough to fulfill this function. Had I used this semi-open voicing in the trombones, the overall sound of the ensemble would have been "grounded" or "anchored," detracting from the brilliance and mobility so important to effective jazz writing. We'll save the open voicing for the climax of the passage, where its added weight will be welcome.

In example No. 47, the first trombone doubles the lead trumpet all the way, except for the final two notes, further ensuring a brilliant, brassy sound. In large brass ensembles, especially where the music is strong and rhythmic, I advise this octave doubling. In ballad writing or for soft backgrounds, octave reinforcement can be overpowering and is to be generally avoided. Once you begin a passage doubled this way, however, you shouldn't noticeably interrupt or terminate the line unless the character or sound of the music changes.

EX. 49

(INTERRUPTED OCTAVE DOUBLING )

4 TPTS.

(CONCERT KEY)

4 TBNC.

ETC.

\* THE DOWNBEAT OF BAR 3 COULD CONCEIVABLY BE ACCEPTABLE BECAUSE OF THE TEMPORARY EMPHASIS ON THE ACCENTED DOWNBEAT WHICH PROVIDES A CLIPPED ENDING TO THE FIRST MELODIC PHRASE.

Not only does this disturb the continuity of the line, it also creates frustration for the lead trombone, who has to weave in and out of the melody. If there is a good reason (usually harmonic) to temporarily interrupt the octave doubling, an instrument of equal strength should continue the line at the point where the original doubling was interrupted.

For another example of the proper handling of octave doubling in the brass, please turn to Chapter Six, and examine example 281.

In bar 3 of example 47, notice the gradual change from *close position* voicing to *semi-open position* in the trombones. This is done for three reasons: (1) The trombone chord on the downbeat of the fourth beat (D<sup>♭</sup>F<sup>♭</sup>M<sup>♭</sup>-5) is intentionally incomplete (no D<sup>♯</sup>) in order to ensure the best *voice-leading*, especially for the bass trombone. (2) The chord on the upbeat of the fourth beat (F<sup>♭</sup>7-5+9) is the richest sounding chord thus far in this passage, and the voicing used is the one best suited to bring out the resonant quality of the chord. (3) The *semi-open* voicing prepares the ear for the *full-open* voicing used for the last two chords of the phrase.

On the second beat of bar four, I used an open voicing temporarily—not to reinforce the bass notes or the chordal root tones, but to *reinforce the wide melodic leap of the lead line*. In brass writing of this kind, it is important to *move all voices in conjunction with the lead voice (insofar as the harmonic pattern allows) most of the time*—especially when encountering such wide leaps, in order to give the overall ensemble a feeling of "togetherness."

The next few beats illustrate the use of *contrary motion* between the low trombones and the rest of the ensemble, providing temporary relief from the *parallel motion* of the previous bars.

The last two chords are voiced wide open, spanning almost four octaves. We are striving here for a big, forceful, sustained sound unlike the tight, mobile feeling we were trying to achieve earlier in this passage.

A beautiful sound for eight brass (used very successfully by the Les Brown band in the 1950's) can be achieved by voicing the trumpets in close position, muted with harmons and doubling this voicing *exactly* in the four trombones an octave lower, playing open, with an amplified guitar underneath the ensemble also playing the melody line in the low register. This voicing is especially effective in a slow-to-medium tempo groove.

Now we'll add one more trumpet and one more trombone to the ensemble, giving us ten brass, which will enable us to illustrate the voicing used to create the exciting brass sound of the Stan Kenton band.

## EX. 50

(CONCERT KEY)

\* DENOTES CROSS-VOICING (INTERCHANGING OF POSITION BETWEEN TWO INSTRUMENTAL LINES IN ORDER TO ACHIEVE OPTIMUM MELODIC MOTION.)

The most obvious characteristic of this sound is the extensive use of *clusters*. The inner density provided by clusters creates the dynamic tension for which the Kenton band is so famous.

When using this kind of voicing in a score, it is advisable to contrast it with lighter, simple textures. This will help to keep the arrangement from becoming too heavy-handed and ponderous and will also make the clusters that much more exciting when they are reintroduced. This "tension-and-release" principle is probably the single most important factor governing the creation of any good piece of music.

Notice the *cross-voicing* in the low trumpets (bars two, three, and seven), which is necessary for optimum *voice leading*. The same reason can be given for the momentary unison of the first and second trumpets on the downbeat of measure three.

Having five trumpets at our disposal enables us to rest the lead player frequently (as in measures four, five, and six) and still maintain a complete chordal voicing.

In the two final chords, note the separation between the bass trombone and the rest of the section. Had we used the fifths (A and G) in the low register, it would have detracted from the vibrancy of the overall sound in general, and the bass trombone sound in particular.

Now let's add a section of four French horns and a tuba (Ex. 51). Except for the last two chords, the trumpets and trombones remain exactly as they are in example 50: the horns are *added* to the other brass, providing extra interest and emphasis, but not affecting the *completeness* of the voicing of the rest of the ensemble.

**EX. 51**

**EX. 51**

(CONCERT KEY)  
^F#185 F#i

5 TPTS.

(CONCERT KEY)  
Q UNISO^

4 HNS.

(DIV.)

TEN. TENS.

5 TBNS.

f (1 BASS TBN. - BOTTOM LINE)

3-SOLO

TUBA

GTR. CuaPEm<sup>7</sup> A<sup>7</sup>t\$E<sup>b9</sup> D9 A<sup>b13</sup> G9 G<sup>13-9</sup> C<sup>b</sup> G<sup>PCDAL.</sup> Dm<sup>7</sup> Em<sup>7</sup> D<sup>#m7-9</sup> E<sup>7-9</sup> B<sup>b9</sup> A<sup>9</sup> A<sup>7</sup># A<sup>7-9</sup>

BASS

GL.

W TPT. TACET

TPTs.  
 HNS.  
 TBNS.  
 TBA.  
 BS.

(UNIS.) (DIV.) (SHORT DROP) (1\* TPT. PUPTS)  
 (UNIS.) 1-2-3 (DIV.)  
 (4-5 TACET)  
 Dm7 E7 Dm7 Ab9 F# G9 Dm7 Dm13 G C6 Db13 Cma13

The horns begin in unison (a very strong sound) with a rip up to a G, then a run down to the G an octave lower. This little counterline makes more sense than voicing the horns in a four-way chord for the first two bars for two reasons: (1) It provides a little extra melodic interest to the passage. (2) The long-short phrasing in the trumpets and trombones could never be duplicated with the same precision by the French horns because of the "spreading" effect we mentioned earlier. Phrasing the horns this way could disturb the clarity of the overall ensemble. Also, the scoop leading up to the last note in the second bar is out of the question for horns at this brisk tempo.

In the third bar, the horns are voiced in close position. The two sixteenth notes on the upbeat of two are omitted, because of the tendency of the horns to "speak" a little late. By omitting these notes, the horns have a better opportunity to land squarely on the downbeat of three. Notice how they are placed in relation to the rest of the *brass-overlapping* the trumpet and trombone sections, maintaining their identity as a *separate section* while contributing to the overall ensemble sound.

The last two notes in bar four are omitted again, because of the horns tendency to "speak" late. It would be very hard for the horn section to pounce on the upbeat of three as the other brass can. The horns rejoin the ensemble on the downbeat of the next bar. Notice, I didn't begin the horns in parallel motion with the trumpets. Instead, they rejoin the phrase on the F and then move up to the G, completing the phrase normally. This is done to avoid making the horns entrance sound too obvious—"jumping out" at the listener. This is especially important in this spot because the second, third, and fourth trombones are temporarily separated from the chordal voicing. Again, the French horns do not duplicate the jazz phrasing of the trumpets for the **first** two beats; this will not be noticed. (Notice the close position voicing of the horn section.)

The beginning of bar six is a pure octave between trumpets and trombones—a very strong sound—which makes the addition of the horns unnecessary; it's better to save them for the last three accented chords of the bar.

In bar seven, the horns are divided into two pairs. Earlier, we mentioned the fact that trumpets and trombones playing *mf* or louder, have approximately twice the strength of French horns. In this example we are compensating for this disparity in strength by putting two horns on each line.

In this climactic cadence we want as big and resonant an overall sound as possible, so, instead of dividing the French horns into a four-way chord as we did in bars three, four, and five, we give them two big, beautiful unisons, especially strong in the top two horns on the high D concert. By doing this, we have also established three *internai resonances*: (1) The interval of the minor sixth in the horn section itself is very rich. (2) The interval between the top trumpet and the top horns is also a sixth (major) equally rich and resonant. (3) The horns, trombones, and tuba taken together, form a big, beautiful C major 13th chord.

Each one of these *internai resonances* contributes to the effectiveness of the total ensemble sound. This principle of *internai resonance* is very important in any kind of orchestral voicing and will be discussed again later in this chapter, and also in Chapter Three.

Throughout the example, the tuba is used sparingly—only in those places where its distinctive sound will reinforce a line (we want our ensemble sound to retain a "pointed" edge) or will provide the necessary power on low chordal roots. Notice, the bass trombone and tuba do not double the low roots in measures seven and eight.

We will use the same basic passage in the next example, showing how it would be voiced for a smaller ensemble of three trumpets, three trombones, and two French horns.

## EX. 52

(CONCERT KEY)

3 TPTS (Em TRIAD) (F TRIAD) (Bb TRIAD) (C TRIAD) (MINOR TRIADS) (T-MOHTIMO) (T-S L)

2 HN3 (UNIS.) (LONG DROP)

3 TBNS (9TH) (3RD) (DOM. 7) (3RD) (9TH) (DOM. 7) (3RD) (DOM. 7) (3RD) (DOM. 7)

BASS (GTR.) (BASS TBN. (BOTTOM LINE)) (Cm7) (Em7) (A7) (E9) (D9) (Ab13) (G9) (G13-9) (C) (Dm7) (Em7) (Dm7-9) (E9) (B9) (A9) (A7-9) (A7-9)

(ETC. J) 3

TPTS. *Eãmm* (UNIS.) (WV.) *m*

HN3. *W* *Ü8Í*

TBNS. *W* *Ü8Í*

BS. *m* *Ü8Í*

ON THE DOWNBEAT OF BAR 3, WE MAKE AN EXCEPTION IN THE INTERRUPTION OF THE DOUBLED LEAD LINE IN FAVOR OF CHORD COMPLETENESS. (SEE FOOTNOTE TO EXAMPLE 49.)



Let's examine the differences between this example and the previous one. The primary difference is in the chordal voicing. In example 51, the voicing is tightly compressed—except for some of the roots, there are no "holes" or notes omitted in any chord. This can create a very exciting sound. In example 52 the voicings are not quite as dense—there are "holes" in the chords. This eliminates a good deal of harshness and produces a mellower, less severe overall sound.

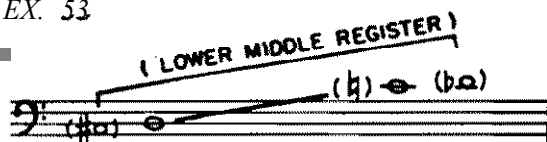
Another factor that contributes to this relative mellowness is the use of *pure triads* whenever possible in the trumpets, and the placing of most of the *dominant sevenths* and some *ninths* in the trombones. This style of voicing is also excellent for strings, and will be illustrated in Chapter Three. The voicing shown in example 52 also allows for more *internal melodic motion* (see Chapter Six) as illustrated in the second trumpet line in measure five.

Compare the French horn part in this example with that in example 51. The horns are now voiced completely in unison. The figure on the second beat of measure two has been changed to avoid a clash between the horn line and the third trumpet. The horns reinforce the upward moving bass line in bars four and five until the fourth beat, where they play the ninths of the chords. Notice how they provide the only link between the wide-apart trumpets and trombones in the final chords.

Though possibly less exciting than example 51, this version, because of its comparative lightness and clarity, would, in my opinion, be more satisfactory for most recording situations.

Notice the distribution of tones in the cadence chords of examples 50, 51, and 52. As a general rule, when scoring higher number chords, (11ths, 13ths) the *thirds* and *dominant sevenths* should be placed in the lower middle register where they are most resonant, thereby exerting their influence over the entire ensemble voicing.

EX. 53



Save the upper register for most major sevenths, ninths, elevenths, and thirteenths to ensure maximum brilliance.

EX. 54

(GOOD) (CONCERT KEY) (CONTINUITY OF LINE) ALSO POSSIBLE (NOT AS GOOD) (WEAK TONE)

4 TPTS. *mi re do ti* *a* *m* *a* *f* *c* *a* *voce* *le* *aoins* *j*

4 TBNS. *Dm* *a* *w* *G*<sup>13</sup> *Cm*<sup>13</sup> *Dm* *A*<sup>7</sup> *G*<sup>13</sup> *Cm*<sup>7</sup>

*v* *a* *j* *A* *7* *1* *=* *^* *1*

In the last two chords in example 52, you'll notice the *fifths* are omitted. The fifth is the *least important* tone of a higher number chord. It can actually weaken the overall resonance of a voicing and should be omitted except in very large ensembles.

In example 55 we will examine this same passage as it would be scored for a small brass section of three trumpets and two trombones.

## EX. 55

(CONCERT KEY)

3 TPTS.

2 TEN. TBNS.

2 TBNS.

BASS

KGTR. C<sup>Δ</sup>Em<sup>7</sup> A<sup>7</sup>+<sup>5</sup> E<sup>b</sup>9 D<sup>9</sup> A<sup>b</sup>9 G\* SUS 4 (NO II) G<sup>b</sup>3 m<sup>1</sup> C<sup>b</sup> Dm<sup>7</sup> Em<sup>7</sup> D<sup>#</sup>5 E<sup>7</sup>+<sup>5</sup> PB9 A<sup>9</sup> A<sup>Δ</sup>-9

GL.

==

TPTS.

TBNS.

BS.

0 m<sup>T</sup> Em\* E<sup>a</sup>7 "T" Dm<sup>7</sup> A<sup>b</sup>9 F# G<sup>9</sup> Om C<sup>b</sup>Ma<sup>5</sup> CS D<sup>b</sup>13 C<sup>Ma</sup> 13

(UNIS.) (DIV.) (SHORT DROP)

(UNIS.) (DIV.)

ARCO

The ensemble is voiced in close position for two bars. In the third bar, it opens up slightly (the voice directly under the lead has been dropped an octave) to keep the trombones from going too high and also to make the E7 + 9 - 5 chord possible.

Notice the cross voicing in the trombones at this point. This is done to keep the melody line in the second trombone (which has been doubling the lead trumpet an octave lower) instead of switching it to the first trombone in "midstream." On the second beat of the next bar, the octave doubling is dropped in favor of a five note chord. Because this beat represents the dividing line between two phrases, and because the two phrases are voiced in completely different ways, this abandonment of the octave doubling will not be noticeable or objectionable.

The second half of measure six, and the first chord in measure seven are voiced in open position; the last chord in modified open position. With only five brass to work with, we can't afford to use even one of them on the root of the final chord. We need as many high-number chord tones as we can get for the climax. The arco bass, especially in a recording studio, will provide enough power down there. Notice the third of the chord (in the second trombone) is up in the higher-middle register—unlike the previous examples where it was placed an octave lower. In small ensembles this becomes necessary to ensure maximum brilliance and to solidify the chord's identity.

The voicing in example 55 produces a very brilliant, even brittle sound—quite a bit like that of the Maynard Ferguson brass section of the late 1950's and early 1960's of which I am an alumnus.

For our final look at brass voicing, we'll examine the same passage as it would be scored for two trumpets and two trombones (Ex. 56). Our main objective, even though we have only four brass at our disposal, is to achieve as big and full a sound as possible.

EX. 56

(CONCERT KEY)

(OIV.)

2 TPTS.

2 TBNS.

BASS

(GTR.)

1 2 3 4

GL.

Chords: Cma9, Em7, A7+5, Eb9, D9, Ab9, SUS4, G9, G13-9, C6, Dm7, G PEDAL, Em7, Dm7-5, Eb9, A9, A7+5, A7-9

TPTS.

TBNS.

BS.

5 6 7 8

Chords: Dm7, Em7, Fm7, Ab9, F# G9, Dm7, Dm7, Dm7, C6, Db13, Cma13

Articulations: (UNIS.), (DIV.), SHORT DROP

\* DENOTES OMITTED THIRD

This voicing here is not as tight as the one in the previous example—it is opened up by dropping the notes directly under the lead trumpet down an octave, giving them to the second trombone. Had the passage been voiced in close position (Ex. 57), the trombones would have been playing in their high register constantly. Not only is this difficult and extremely tiring, but the contrast in intensity between the trombones in the high register and the trumpets in their middle to upper-middle register would noticeably distort the overall sound. This is an important consideration when voicing for any combination of instruments. Unless you are striving for an unusual effect with an intentionally unbalanced voicing, *the intensity of the lower parts should not exceed that of the higher ones.*

## EX. 57

2 TPTS.  
(CONCERT KEY)  
2 TBNS.  
1 2 3 4  
DIFFICULT

==

5 6 7 8  
(UNIS.) (DIV.) (SHORT DROP)  
(UNIS.) (DIV.)

The difference in texture between examples 56 and 57 will be aurally demonstrated in recorded example 5.

Because of the small size of this ensemble, we are forced to compensate in several ways in order to create an illusion of fullness. (1) In measure three of example 56, instead of using complete chords as we did in the previous example, the brass are in octaves for two beats. Octave and unisons are useful when trying to make an ensemble sound big and full. (2) We must eliminate the *contrary motion* between the trumpets and trombones which we used in earlier examples. With only four brass, this would have sounded forced and unnatural. Instead, measure five is voiced completely in parallel motion. (3) Notice the omission of the third or seventh in the chords indicated. In small brass sections, the third is frequently omitted in favor of a higher number chord tone (sixth, augmented ninth, etc.), again, to create a sound which gives the ensemble the illusion of being larger than it is.

In the last section of this chapter, we will again return to this passage as the basis for further examples.

## PART TWO: WOODWINDS

The average recording woodwind player of the 1940's or early 1950's was expected to play a saxophone and be able to double on clarinet. A few ambitious souls also played some flute.

At the time, studio recording was more or less standardized; except for lush string dates, most arrangers were content with a conventional ensemble of brass and saxophones—usually a Count Basie or Glenn Miller big band sound.

Occasionally, tentative experiments with "exotic" reed colors were attempted (the Charlie Parker with strings album on which an oboe was used, the Kenton Innovations orchestra, etc.), but they did not substantially affect the general attitude of most recording arrangers.

In 1952, two great writers, Eddie Sauter and Bill Finegan, who previously had been extremely successful with their scores for the Benny Goodman, Ray McKinley, Glenn Miller, and Tommy Dorsey bands, decided to form their own organization—the Sauter-Finegan Orchestra. For their own library, they wrote beautiful, adventurous arrangements which called for multiple reed doublings—flutes, piccolos, oboe, English horn, bass clarinet, recorders—never before attempted in a commercial group of this kind. Their records were played and accepted with equal enthusiasm by musicians and the general public. As a result, many studio arrangers tried to imitate the novel reed sounds and use them in their scores. If you can find a copy of any of the Sauter-Finegan albums somewhere, by all means buy it! You'll be amazed at the freshness and vitality of the writing; it sounds as good today as it did 25 years ago.

As a result of the success of this band, many woodwind players began "woodshedding" on new instruments to supplement their basic sax-and-clarinet doubling, so they wouldn't be left behind in the new trend.

The situation remained fairly stable until 1957 when Henry Mancini's imaginative score for the "Peter Gunn" television series became so successful. Mancini's music was centered around the use of several alto flutes or bass flutes playing softly in unison—a lovely sound which became extremely influential; it is still used extensively in commercial recording today, 20 years later.

1 on liante

The contemporary recording woodwind player is expected to play soprano, alto, tenor, and baritone saxophones, B♭ clarinet, bass clarinet, and all the flutes. Some also play oboe, English horn (these double reeds are often handled by a specialist, as is also the case with the bassoon), contra-bass clarinet, and the recorders. There are a few supermen who are prepared to play as many as twenty different instruments! The mind boggles.

## SAXOPHONES

EX. 58

	WRITTEN	ACTUAL SOUNDS	BEST RANGE (WRITTEN)
B <sup>B</sup> SOPRANO SAX			
E <sup>B</sup> ALTO SAX			
B <sup>B</sup> TENOR SAX			
E <sup>B</sup> BARITONE SAX			
B <sup>B</sup> BASS SAX			

\* THROUGH THE USE OF SPECIAL "FALSE FINGERINGS", THE EXTREME HIGH REGISTERS OF ALL THE SAXES CAN BE EXTENDED - PRODUCING TONES A FIFTH OR EVEN A SIXTH HIGHER THAN THE INDICATED UPWARD LIMIT. THESE NOTES, HOWEVER, ARE GENERALLY UNRELIABLE AND ARE ONLY PRACTICAL IN A VIRTUOSO SOLO PART - NEVER A WRITTEN ONE.

\*\* LATE MODEL ALTOS AND TENORS ARE EQUIPPED WITH A HIGH F# KEY.

\*\*\*OCCASIONALLY, YOU MAY FIND A BARITONE SAX WITHOUT THE LOW A (C CONCEPT)

The soprano and bass saxes are seldom used in a saxophone section. The soprano is often heard in improvised jazz solos, particularly since it was a favorite instrument of the late John Coltrane. The bass sax was originally used for the bass notes in a Dixieland combo, and is most often heard in the same context today. It is a somewhat cumbersome instrument with a comical character, especially in the extreme low register.

The usual saxophone section, consisting of various combinations of alto, tenor, and baritone saxes, sounds excellent in unisons<sup>4</sup> (particularly when played softly in subtone),<sup>5</sup> octaves, thirds, and either *close*, *semi-open*, or *open* position voicings.

Here is an example of a médium tempo swing phrase voiced in *close position* for a section of four saxophones.

EX. 59

[CLOSE POSITION VOICING]  
ACTUAL CONCERT PITCH (NOT TRANSPOSED)

4. The texture of a unison line will vary according to the number of instruments participating—generally becoming smoother and more unified with each additional reinforcing voice. This is particularly noticeable with woodwinds.
5. Subtone playing is a very beautiful effect, especially in the lower middle register. It is produced by relaxing the jaws and slightly damping the reed vibration with the tongue, allowing a small amount of air to mingle with the tone. This effect is also possible on the clarinet.



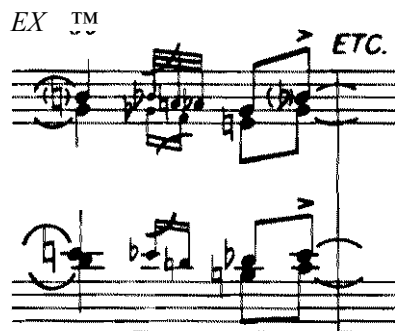
This passage could be voiced for two altos and two tenors (a combination used by Benny Goodman, Artie Shaw, and virtually all bands of the swing era), two altos, one tenor and a baritone, or three tenors and a baritone—the famous "Four Brothers" sound from the great Woody Herman Herd.

A fifth saxophone added to this section—doubling the lead alto an octave lower (referred to as *block voicing*)—gives the overall ensemble sound added depth and power without sacrificing mobility. This basic five member combination (two altos, two tenors, one baritone) is the one most commonly found in contemporary jazz bands.

Please examine each individual saxophone line separately. In *close position* writing, logical voice leading is very important—especially in up-tempo jazz phrasing.

In measure two, notice the tie between the Db and the enharmonic C# in the bottom voice and also the G in the third saxophone held over into bar three. The avoidance of a reiteration of the same tone allows the line to swing in a relaxed way. It will not affect the unity of the overall ensemble feeling.

In measure six, the wiggly lines signify a fingered chromatic run, if the tempo permits. This marking is standard practice in woodwind writing; it eliminates the necessity of having to write in all the grace notes.



Dropping the second voice of a close position voicing down an octave, results in a *semi-open* voicing—creating a mellower, less dynamic sound that can be effective, particularly if the lead alto is playing in a fairly high register most of the time.

## EX. 61

## SEMI-OPEN POSITION VOICING

ACTUAL CONCERT PITCH

By eliminating the second tenor line (which doubles the lead alto an octave lower), you have an example of the proper way to voice four saxes in *semi-open* position.

Voicing the saxophones in wide-open or "spread" position, results in a full-throated organ-like sound, particularly well suited to slow-moving ballad passages.

## EX. 62

## OPEN POSITION VOICING

SLOWLY

CONCERT PITCH  
1 2 ALTOS

Notice the spread between the lead alto and baritone, especially on the fourth beat of measure two. In *open position* ballad voicings, the primary concern is overall depth and richness of sound; consequently, the voice leading may be less strict than in rhythmic passages. For instance, in moving from bar four to five, both the second tenor and the baritone have a rather awkward melodic skip of a diminished fifth- (Bb to E, and C to Fj , respectively); the intervening two beat rest, and the change in volume will help to conceal the linear weakness.

*Cluster voicing*, which incorporates several seconds within the span of an octave, can be very effective for a saxophone section, especially when combined with parallel melodic motion (Ex. 63). The library of the Thad Jones-Mel Lewis band is full of such examples c, cluster writing.

## EX. 63

**CLUSTER VOICING I**  
**CONCERT SKETCH**

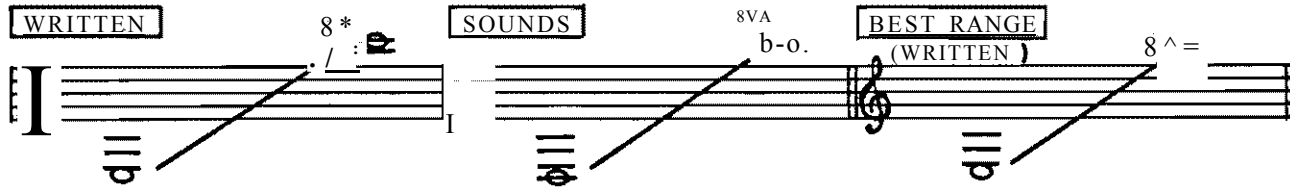
2 ALTOS  
2 TENORS  
1 BARITONE

A sax section also sounds excellent in voicings in which the interval of a perfect fourth is predominant. (See Ellington sound, example No. 70.)

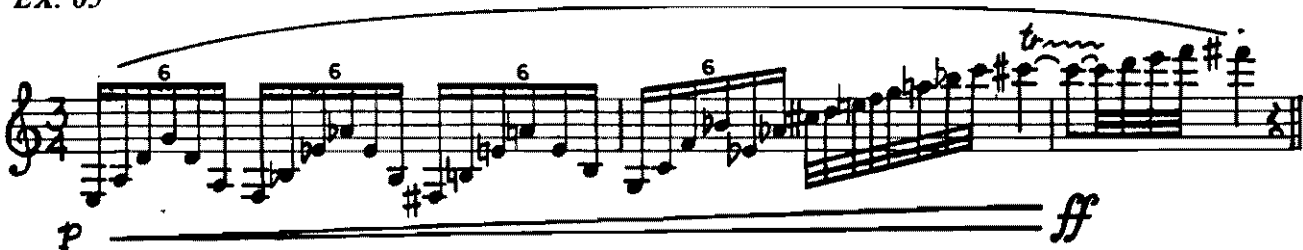
When scoring a passage for saxophones, it is not necessary to maintain any one type of voicing throughout; a combination of any of the voicings described above can be employed in order to achieve textural variety.

## CLARINETS

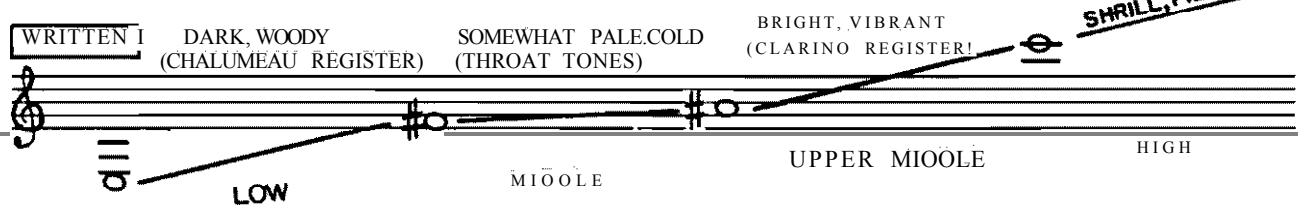
The *B $\flat$*  clarinet has the most extensive range of any woodwind instrument (Ex. 64), and ranks second only to the flute in agility. Rapid scale runs, trills, and arpeggios are easily playable and very effective on the clarinet (Ex. 65). It is capable of producing several different tonal shadings (Ex. 66).

EX. 64 *B $\flat$*  Clarinet

EX. 65



EX. 66



In solo passages, particularly those in the dark, "chalumeau" register, the clarinet can be expressive and beautiful in any setting.

As a section, clarinets tend to sound best when playing in unison, (especially subtone in the low to middle registers) thirds, or voiced in *open* position.

This open voicing is especially useful when the clarinet section is used as a "pad" behind a vocal or instrumental soloist.

## EX. 67

## CONCERT SKETCH (NOT TRANSPOSED)

4 B $\flat$  CLARINETS  
1 BASS CLARINET

The clarinet has been used as the lead voice over a saxophone section voiced in close position to create an identifiable reed sound for many different bands. The most famous example of clarinet lead voicing is the Glenn Miller sound.

## EX. 68

## CLOSE POSITION "BLOCK" VOICING

## CONCERT SKETCH (NOT TRANSPOSED)

(WITH FAIRLY FAST VIBRATO)

CLAR.  
ALTO  
ALTO  
TENOR  
TENOR

f

3

This reed voicing represents the single most popular and imitated dance band sound of all time. Notice the *close position* "block" voicing (the lead melody doubled an octave lower); the brilliant-sounding register, and the vibrato and volume indications; these are all essential components of the Miller sound.

Another beautiful clarinet lead sound became the foundation of the Claude Thornhill style.

## EX. 69

CONCERT SKETCH (NOT TRANSPOSED)  
(NO VIBRATO-SUBTONE )

In contrast to the vibrant Miller sound, this one is velvety and subdued. The French horn and clarinet lead, the subtone effect, and the low register all contribute to the beauty of the Thornhill voicing.

Duke Ellington has used the clarinet lead over saxophones this way (Ex. 70). Notice the emphasis on the interval of the *fourth*. The Woody Herman, Charlie Barnet, and Gerry Mulligan bands have also featured this distinctive reed voicing in many of their scores.

## EX. 70

4th CHORD VOICING

CONCERT SKETCH

The clarinet blends exceptionally well with other instruments, and when doubling a line, either in unison or at the octave, has the unique ability to lose its individuality and assume a supporting role.

This can be very useful to the arranger in passages which call for a "thickened" or "mixed" sound.

I recommend the following clarinet doublings:

*clarinet and flute*—unison or octaves—upper middle to high register.

*clarinet and oboe*—unison or octave—upper; middle to high register.

*clarinet and bass clarinet*—in octaves—low to middle register.

*clarinet and English horn*—in unison—low to middle register—especially beautiful "woody" sound.

*clarinet and bassoon*—unison or octaves—low to lower middle register.

*clarinet and French horn*—in unison—subtone, with no vibrato—low to middle register.

*clarinet and trumpet in cup mute*—in unison—no vibrato—lower middle to upper middle register.

*clarinet and flugelhorn*—in unison—no vibrato—lower middle to upper middle register (not much higher than G above the staff).

*clarinet and trombone in cup mute*—in unison—low to middle register.

*clarinet and viola or cello*—in unison—low to middle register—especially useful when a pure string sound is undesirable.

The recording woodwind player will occasionally be called upon to play *E♭ clarinet* (Ex. 71), especially in scores where an extended high register passage would be too difficult for B♭ clarinet. The tone of this instrument is somewhat lighter in body and more penetrating than the B♭ clarinet. One hears it frequently in authentic Greek music.

EX. 71 • *E♭ Clarinet*

WRITTEN

SOUNDS

QV&

BEST RANGE

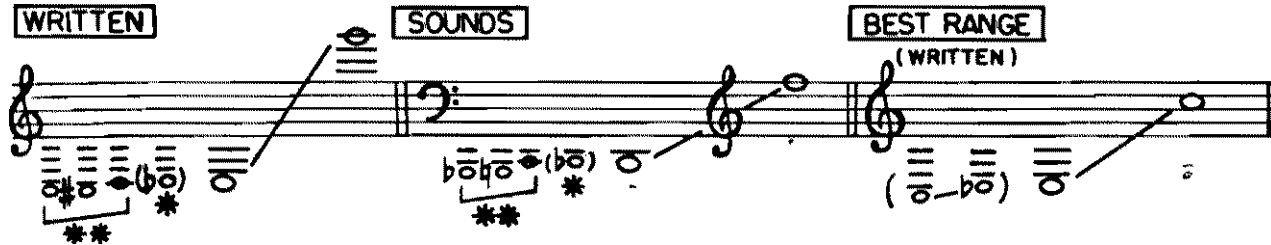
WRITTEN

8va (e de)

B-Q-TEGLÈ

The Bb *bass clarinet* (Ex. 72) is an excellent recording instrument. It is especially effective in the low register, where its direct, pointed sound can be heard clearly even when mixed with combinations of other instruments—as the lowest voice under trombones, French horns, or a complete string section. It can also be used effectively to double a cello line.

EX. 72 Bass Clarinet



\* SOME BASS CLARINETS HAVE THE LOW D<sup>B</sup> CONCERT.

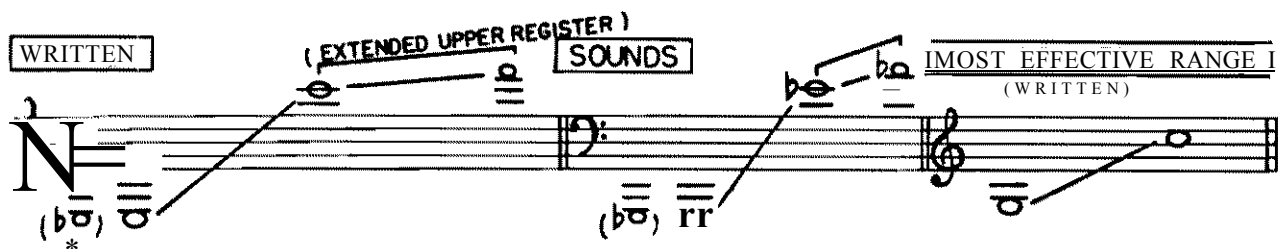
\*\* THE VERY LATEST MODELS ALSO HAVE ALL THE NOTES DOWN TO LOW B<sup>A</sup> CONCERT.

The high register of the bass clarinet (above the staff) is tense and strained, and should be avoided unless it is doubled by another instrumental color (especially viola or cello), which is strong enough to mask the awkwardness of the tone.

The Eb *contra-bass clarinet* (sometimes referred to as contra-alto clarinet) is an instrument reserved for special musical occasions. I have used it in scores where a low C or Bb (below the range of most bass clarinets) was necessary and for comic or sinister effects played in the low register.

The true *contra-bass clarinet*—a large, cumbersome instrument pitched in Bb (sounding an octave below the bass clarinet) is not used.

EX. 73 Contrabass Clarinet (in Eb)



\* THIS NOTE IS FOUND ON MOST, BUT NOT ALL CONTRABASS CLARINETS. BELOW WRITTEN LOW G OR G<sup>♮</sup>, THE PITCH BECOMES INDISTINCT AND GUTTURAL.



## FLUTES

The most versatile member of the flute family is the basic "C" flute.

## EX. 74 "C" Flute

ISOUNDS AS WRITTEN! DARK RICH CLEAR BR, LUT, JJA VERY DIFFICULT AND UNDEPENDABLE [BEST RANGE]

LOW MIDDLE MIDDLE HIGH

\* MOST MODERN FLUTES ARE NOW EQUIPPED WITH A KEY MAKING THE LOW B<sup>b</sup> POSSIBLE.

In the hands of a supreme virtuoso like Hubert Laws, the instrument is capable of producing a variety of tonal shadings—dark and rich in the low register, crystal clear in the middle, brilliant and piercing in the high. Extremely fast runs, arpeggios, repeated notes, and wide skips between registers are easily executed.

## EX. 75

p mf

Trills are also indigenous to the character of the instrument. The following trills should be avoided

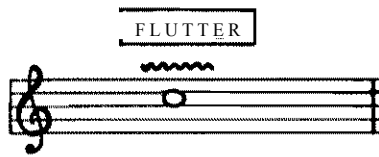
## EX. 76

IMPOSSIBLE TO EXECUTE QUICKLY IMPRACTICAL" HARD TO EXECUTE

XT = 0" f i f s f 5

Another effect often employed by flute players is *flutter-tonguing*—rapid repetition of a single note. It is indicated this way.

EX. 77



As a section, flutes tend to sound best when playing in unison, especially in the low to upper middle register, or voiced in simple triads.

EX. 78  
MODERATO

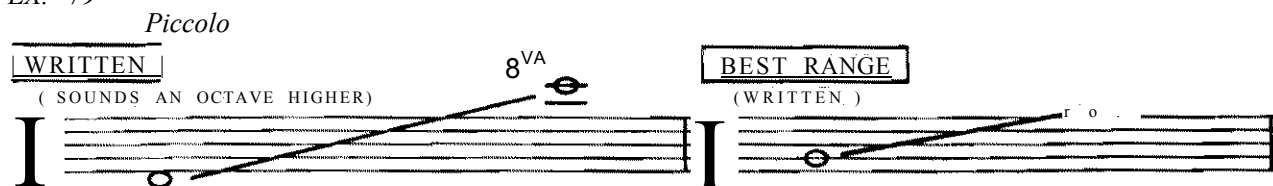
This produces a clean, uncluttered sound, ideal for recording. I much prefer this voicing to a four-way close position or cluster voicing for flutes; adjacent seconds tend to clash and create harsh overtones, especially in the High register.

The flute blends readily with all other woodwinds in unison or octaves, and is also used quite frequently to reinforce a string line and to add high register brilliance to a biting brass ensemble. (See Part Three of this chapter.)

A solo flute line can be thickened effectively with vibes or bells, depending on the register and character of the passage.

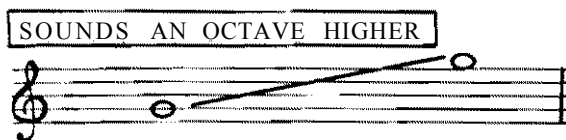
Ali recording flautists double on *piccolo* (Ex. 79). Because of its bright, piercing quality, this instrument is often used as a high octave reinforcement over woodwinds or brass. The extreme high register is capable of penetrating the sound created by any instrumental ensemble, regardless of size. The arranger, particularly in a recording situation, must use it with discretion.

EX. 79



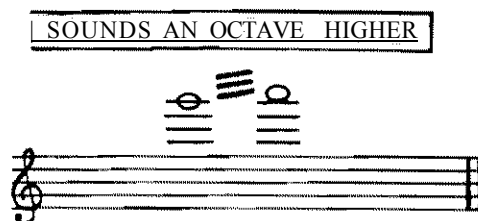
The lower middle register of the piccolo (Ex. 80) is delicate and sweet sounding—preferable to the flute (which in this octave is rather intense) for quiet solo lines.

EX. 80



The trill is the most characteristic effect associated with the piccolo—especially in music for marching bands. The following trill is impossible to execute properly—and should be avoided.

EX. 81



A happy light-hearted feeling can be achieved with two or more piccolos playing in unison, and by doubling a solo or unison piccolo line with bells or xylophone.

My favorite passage in symphonic music utilizing the piccolo occurs in Ravel's *Bolero*.

LY. 82

The musical score shows four staves. Piccolo I and Piccolo II are in treble clef with a key signature of two sharps (D major). Piccolo I has a dynamic of *pp* and Piccolo II has a dynamic of *p*. Both are marked "(SOUNDS AN OCTAVE HIGHER)". The French Horn is in bass clef with a key signature of one flat (B-flat major) and is marked "(ACTUAL SOUND-NOT TRANSPOSED)". It has a dynamic of *ff* and is marked "(SOUNDS AN OCTAVE HIGHER)". The Celeste is in treble clef with a key signature of one flat (B-flat major) and has a dynamic of *p*. The French Horn and Celeste play the same melody, which is a series of eighth notes. The French Horn part includes a *3FF* marking and a *Q & S i* marking. The Celeste part includes a *3FF* marking and a *Q & S i* marking.

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The French horn plays the melody in C (doubled by the high celeste). The two piccolos also play the melody—but in keys built on the third and fifth partials of the harmonic series of C (G and E, respectively)—creating a magical, organ-like sound which never fails to give me a thrill every time I hear it.

Notice the different volume indications for the various instruments.

In this passage, the piccolos are not heard as a separate entity, but instead as overtones of the fundamental French horn sound.

The *alto flute* is one of the most popular instruments on the contemporary recording scene. It is pitched in G (it is sometimes referred to as G flute) and sounds a fourth lower than written.

EX. 83 *Alto Flute*

The beauty and individual character of the instrument is most apparent in the low register (C to C). I try to keep the alto flute below written high G (above the staff); ascending above this note produces a rather weak tone and can also introduce intonation problems.

The one drawback of the instrument is its very limited projection: I usually combine two or more alto flutes in unison in order to achieve the characteristic "breathy" sound favored by so many recording arrangers. I have combined three alto flutes in a triad voicing, but whenever possible, I reinforce the sound by doubling it with vibes, electric piano, marimba, or by having the flutes overdub themselves? On occasion, I have also used four alto flutes voiced in close position (very much like the "Four Brothers" saxophone sound) and in a block voicing over subtone clarinets (three alto flutes and two clarinets) with a fair degree of success. The basic unison sound, however, is much more effective for most scores.

Because of its limited carrying power, a single alto flute generally doesn't blend effectively in mixed woodwind combinations.

The impractical trills cited in Example No. 76 also apply to the alto flute.

Everything mentioned about the alto flute concerning tone quality, projection, and blendability also applies to the *bass flute*.

EX. 84 *Bass Flute*

6. For a discussion of this and other recording techniques, see Chapter Eight.

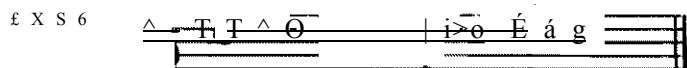
Three or four bass flutes playing in unison (it really isn't possible to voice them successfully in any other way) create a unique and mysterious sound-velvety in texture and very limited in projection.

The only instrument I've every used to double a unison bass flute line is the marimba—anything else would mask its character or cover it completely-it's that subtle.

This trill is impossible on the instrument.



Many bass flutes are not equipped to play the following trills.

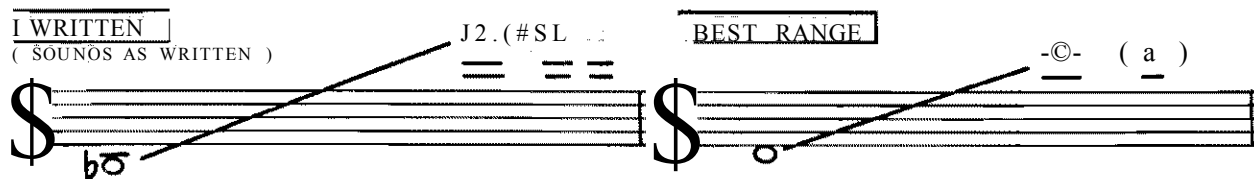


The bore of the bass flute is very large and demands a considerable amount of air to produce a tone. For this reason, the arranger must allow as many breathing spaces as possible.

## DOUBLE REEDS

The *oboe* is a non-transposing instrument, sounding as written.

### EX. 87 Oboe

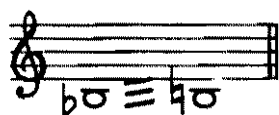


As a solo orchestral voice, particularly in slow moving melodies, it is very expressive, though at times it can be a bit coarse, especially in the lowest part of the range (F down to Bb). These notes are also the most difficult to control, and unless the reed player is an accomplished oboist, it would be wise to avoid writing them.

The extreme high register (above the highest D) is also hard to control, and it is best not to write too long or too difficult a passage up there—particularly one which includes skips—for any but the most skilled performers.

The oboe is generally not as agile as the flute or clarinet. It is capable of producing trills, though not at the speed possible on these other woodwinds. The following trill is impossible to play.

EX. 88



Rapid staccato passages are easily playable and consistent with the character of the instrument.

EX. 89



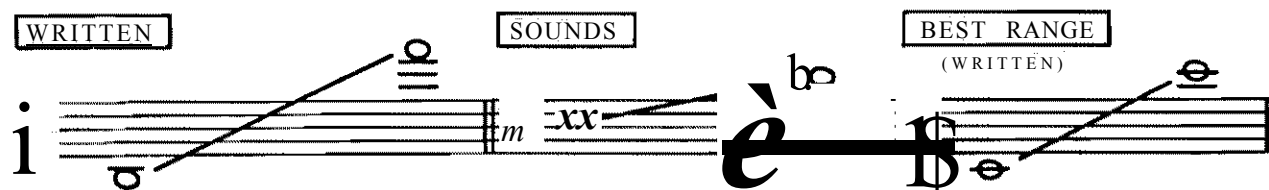
Oboés are effective when voiced in thirds, open fifths (especially good for Oriental flavor), or, if three oboés are available, in triads, as we voiced the flutes in example number 78.

I don't recommend voicing oboés in unison unless, for some reason, an especially harsh effect is required.

The oboe may be combined effectively (in unison or octaves) with flutes, piccolos, clarinets, English horns, and bassoons.

Ali recording oboe players also double on *English horn*. It is a transposing instrument, pitched in F.

EX. 90 *English Horn*



The *English horn* is quite similar to the oboe in sound, though less strident and slightly "woodier" in flavor, especially in the low register where the distinctive character of the instrument is most apparent.

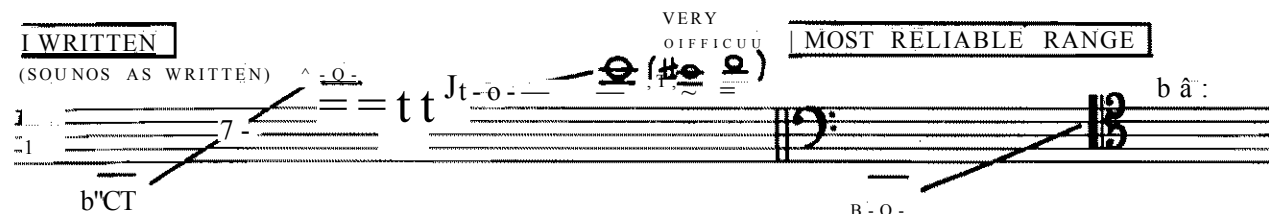
As a solo voice for ballad melodies, it projects a distant, cold, autumnal sound—quite beautiful and unique. Unlike the oboe, it does not become coarse or nasal in the bottom of its range, which makes it extremely useful as the lowest voice in a three-way voicing in place of an oboe.

As we mentioned earlier, the English horn blends beautifully in unison with a clarinet. I have also found three English horns voiced in triads to be a very satisfying sound, creating a rich, Spanish feeling.

Recording woodwind players who double on oboe and English horn do not necessarily play *bassoon*. This instrument has a completely different technique and is usually played by a specialist. Many recording bassoonists do, however, play some of the other woodwinds discussed earlier in this chapter.

The *bassoon* is a non-transposing instrument. The bass clef is used for the low register from the bottom Bb up to the F or G above the staff, and the treble clef for the remainder of the high register.

EX. 91 *Bassoon*





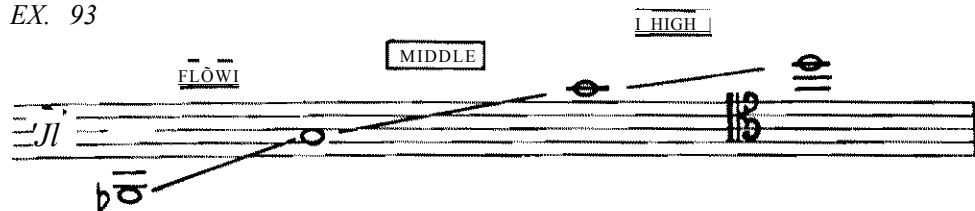
Naturally, if a passage lies predominately in one clef or the other, the arranger will score the entire passage in one clef instead of alternating between the two.

## EX. 92



The lower part of the range is rather thick and robust, the middle register vibrant and sonorous, and the high register becomes more tense as it ascends.

## EX. 93



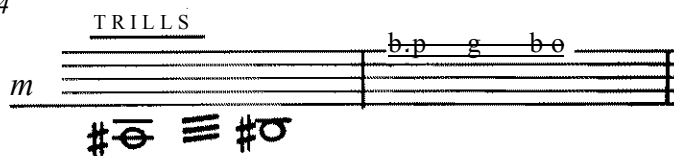
Perhaps the most famous high register passage for bassoon can be heard in the solo opening bars of Stravinsky's masterpiece, *The Rite of Spring*.

Of all the members of the woodwind family, the bassoon is the hardest to record properly, having the tendency to become lost when combined with other instruments. Its sound is not as pointed or direct as the flute or oboe, but is instead rather strained and diffused. It does have a unique tonal color, however, and is most effective when the texture of the passage in which it is used is transparent enough for the bassoon to be heard clearly.

Unless the arranger specifically requires a bassoon color in a score—as a solo voice, or in a classical woodwind quintet—it is usually preferable to use a bass clarinet to play the low notes of a woodwind ensemble in order to insure maximum clarity.

Though not as flexible as the other woodwinds, the bassoon can perform moderately paced scale runs with relative ease. Trills, especially in the low register, can be troublesome. Most recording bassoonists, however, can usually improvise a flanging to accomodate most of them. The only ones to avoid are:

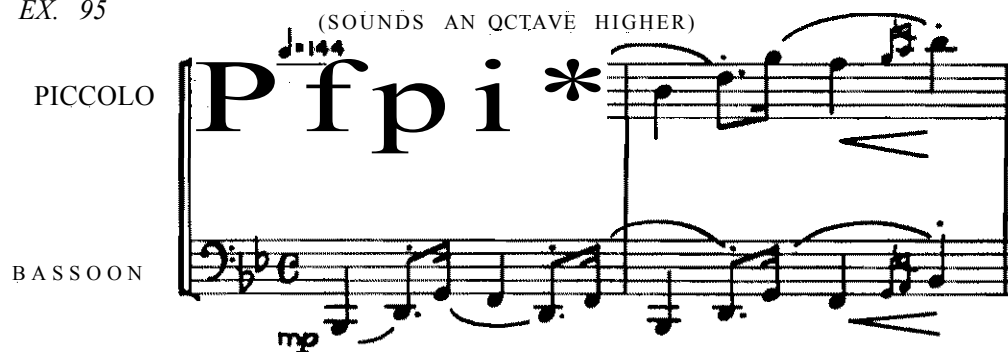
*EX. 94*



Staccato passages are very effective on the instrument, particularly if they lie in the low to middle register.

The bassoon may be doubled with clarinet or bass clarinet in unison or in octaves. A nice light-hearted effect can be achieved by doubling a low bassoon line with a piccolo playing four or five octaves higher.

*EX. 95*



The bkssoon can also be used to reinforce a cello line, legato or staccato.

The *contra bassoon*, pitched an octave below the bassoon, is like the Bbcontrabass clarinet, large and unwieldy, and is not generally used in contemporary commercial music.

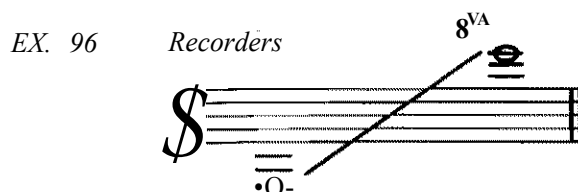
## SPECIAL PURPOSE WIND INSTRUMENTS

In addition to having mastered many of the woodwind instruments already discussed, some recording reed players have acquired considerable skill in the playing of the *recorders*.

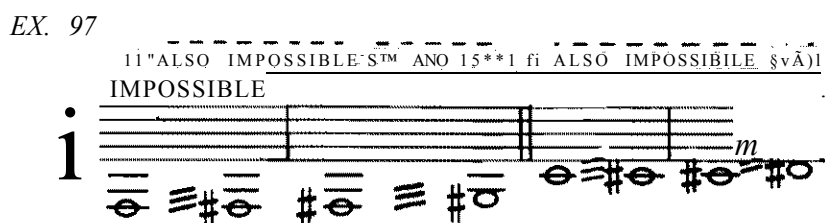
Recorders are constructed of wood or plastic in **five** sizes—F soprano, C soprano, F alto, C tenor, and F bass. The delicate tone produced by these instruments is ideal for use in arrangements in which an especially intimate sound is required, especially those with a baroque flavor.

The recorders are scored in the treble clef. It is not necessary to memorize the transpositions or the ranges of each individual recorder; the arranger indicates the desired concert pitches, and the player (who always brings a full set of recorders to the session) is fully prepared to make any necessary adjustments.

The complete tonal compass of the recorder family extends from F below middle C up to G two octaves above the staff.



The flexibility and projection of these instruments is very limited. Chromatic passages at a fast tempo are very difficult. The most comfortable keys are F, C, G, and D. The following trills are impossible to play.

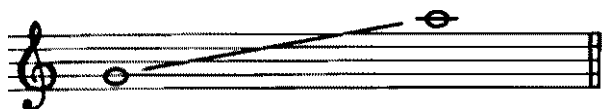


Because of their light sound and rather delicate intonation, the recorders are best used as solo instruments, in recorder ensembles (voiced very much like a string quartet) or over a combination of flutes, clarinets and bassoon. It is *not* advisable to combine recorders in unison or in unison with other instruments.

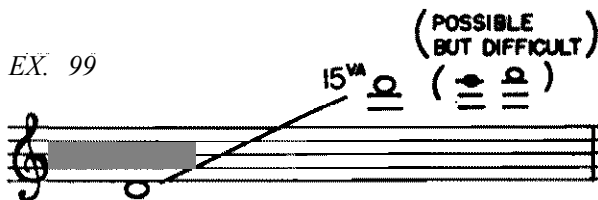
The *ocarina*, sometimes referred to as "sweet potato," has a sound similar to that of the recorder, but is more primitive and limited in its capabilities.

Ocarinas are constructed in individual keys, each one with a basic nine-note range (Ex. 98). Most players, however, only play those ocarinas that maintain the most reliable intonation—those built in the keys of D, F, G, Bb, and C. (There are two models built in C—one with C above middle C as the lowest note, and another built an octave higher.) The complete dependable range of the ocarina family is shown in example number 99.

EX. 98 *Ocarina in G*



EX. 99



In general, the lowest notes (below G) are impractical and rather difficult to project. The characteristic sound of the instrument is most apparent as it ascends above the staff. In the highest register, it achieves a "penny whistle" sound, good for special child-like effects.

The first half step on any ocarina is unreliable and should be avoided. Two trills are impossible on the instrument—that incorporating the fundamental pitch and the half step above, and that incorporating the lowered second and the lowered third of the key in which the ocarina is built. For instance, on the ocarina pitched in C, the following trills are impossible.

EX. 100

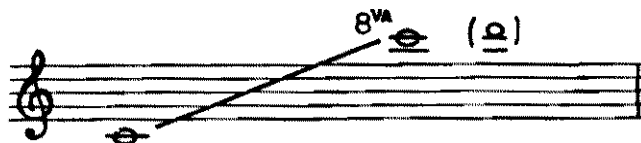


The ocarina is used exclusively as a novelty solo color, never doubled or combined with other instruments.

*Harmônica*

Although the sound of the harmônica is produced by a stream of air blown across a set of metal reeds, it is not a woodwind double—it is always played by a specialist.

There are two basic types used in studio recording—the *chromatic* model (Ex. 101), used for any music that demands a pure, clean harmônica tone, and for technically demanding melodic passages (fast runs, trills, shakes, and bent notes); and the *diatonic Marine Band* model (Ex. 102), which is constructed in all twelve keys and is used in folk, rock, or country blues music. Not all harmônica players are prepared to play both models, and many authentic blues harmônica players do not read music. With these performers, the arranger must be prepared to communicate his musical intentions verbally.

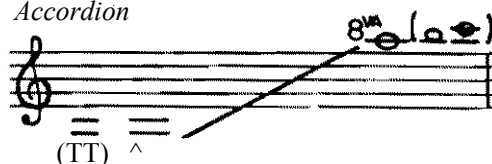
EX. 101 *Chromatic Harmônica*EX. 102 *Diatonic Marine Band Harmônica*

SOME MODELS ARE EQUIPPED TO PRODUCE ANOTHER OCTAVE BELOW MIDDLE C.

*Accordion*

The accordion is, of course, a keyboard instrument, always played by a specialist. Technically it is a member of the wind instrument family inasmuch as its sound is produced by a stream of air (generated by bellows) blowing across a set of reeds.

The basic range of the keyboard is shown below (Ex. 103). This range can be extended an octave in either direction by means of a set of built-in switches, which can also be made to alter the tone quality of the instrument.

EX. 103 *Accordion*

SOME NEWER MODELS HAVE AN EXTENDED KEYBOARD MAKING THE EXTENDED RANGE POSSIBLE.

One of the accordion sounds heard most often, especially in music calling for a very obvious "French" flavor, is the reedy, slightly out-of-tune "musette" sound.

In addition to the keyboard (played with the right hand), the accordion has a complex set of buttons (played with the left hand), which are designed to play low bass notes and chords. These are used exclusively for solo accordion playing-not for most recording purposes-and the arranger need not concern himself with them.

This instrument is used almost exclusively for solo color, though in a pinch, can be combined with a clarinet or flute lead to simulate a woodwind section effect.

### COMBINING THE WOODWINDS

As we have seen, the combining of *similar* woodwind instruments presents no special problem to the arranger; uniformity of sound and texture usually insure a satisfying blend. Problems do arise, however, in voicings wherein dissimilar woodwind colors are combined.

Though every orchestral instrument has its own individual character with its attendant strengths and weaknesses, *it is a basic tendency of most instruments to project greatest intensity when playing in either the extreme low or extreme high register.*

This fact is essential to remember when mixing any combination of orchestral colors, especially woodwinds. In trying to achieve an homogeneous blend, the intensity of each voice must be carefully considered and placed so as to lend itself to the formation of the best overall sound. As we have mentioned, with today's sophisticated recording equipment, any artificial orchestral balance is achievable. For instance, a single low flute can be made to sound as full and weighty as an entire brass section; however, this is obviously an unnatural effect, one which would not be possible in a live performance and, for most purposes, undesirable because its inherently unnatural character disturbs the ear and the musical mind.

*Except for occasional situations in which a special electronically manipulated balance might be valid, the great majority of your voicings should be natural sounding and acoustically attainable.*

With these basic principles in mind, we will now examine several examples in which we apply them to the voicing of various combinations of woodwind instruments.

The ways in which various degrees of intensity can affect a simple voicing will be demonstrated in the next few examples. First, a minor third scored for flute and oboe.

EX. 104

(A) (B) (C)

ü  
ruürr  
OBOE

The flute is placed above the oboe. Very rarely would the reverse be successful because of the difference in tonal weight between the two instruments.

In (a), playing at a dynamic level of (*mf*), the flute-tone is lovely and warm but relatively light compared to the oboe's low B—normally a very harsh sound which would negate the beauty of the flute note, making this voicing impractical.

By raising the voicing an octave, (b), the disparity in tonal weight is considerably lessened, though in this register the oboe still must be careful to adjust his volume slightly in order to allow the flute to predominate.

In (c) the two instruments are just about equal in intensity. The high register tends to balance out the inherent acoustical differences between the flute and oboe, making this version the most successful of the three.

For an aural demonstration of this example, please listen to recorded example number 6.

Notice how the blend between the flute and oboe changes with each rise in register.

If we replace the oboe with a clarinet (Ex. 105), there is no great difference in balance between the three registers. (Listen to recorded example number 7.)

EX. 105

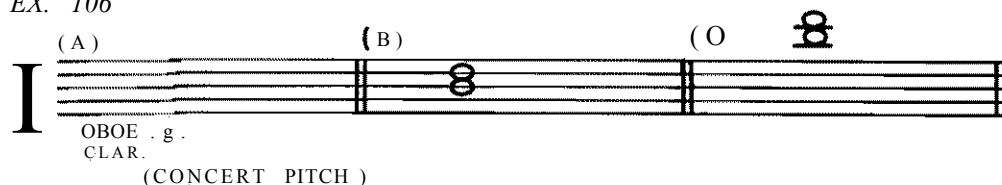
(A) (B) (C)

FLUTE  
CLAR. - 8 -  
(CONCERT PITCH - NOT TRANSPOSED)

The clarinet, as we mentioned earlier, is one of the most readily blendable orchestral instruments, with great control throughout most of its range. This makes it possible for us to voice the clarinet in thirds with the flute in just about any dynamic shading and still maintain a successful blend.

The clarinet's versatility is also evident in the following example in which we combine it with an oboe. (Listen to recorded example number 8.)

EX. 106



Notice how the clarinet has adjusted his sound, making it more o en to accommodate the strong sound of the oboe, just as he lightened his tone to match the flute in the previous example.

Unisons of flute and oboe, flute and clarinet, and oboe and clarinet, from C upwards (Ex. 107) are all strong and useful sounds, each doubling having a character of its own. Listen to recorded example number 9 for a demonstration of all three combinations.

EX. 107



Octave couplings of any combination of flute, oboe, and clarinet are equally useful and usually even more pleasant sounding than unisons, since each instrument has its own register in which to establish its own identity while still blending with another instrument. There is also less chance of an intonation conflict than in unison doublings.



The combination of all three sounds (flute, oboe, and clarinet) in a simple triad voicing (Ex. 108) is theoretically possible, but I have found it to be generally disappointing. No one color seems to predominate, leaving the voicing with a lack of character. I'd much prefer to voice the same passage for three flutes, two flutes and one oboe, three oboes, or two oboes and a clarinet.

## EX. 108

(CONCERT SKETCH-NOT TRANSPOSED)

Combinations of dissimilar woodwind instruments usually do not sound good when voiced in close position. The clash of adjacent seconds tends to underline and amplify the differences in tonal texture between the various winds—making a uniform blend extremely difficult if not impossible to attain. Each individual color needs some aural room within the framework of the overall woodwind ensemble—the interval of at least a third separating it from its closest neighbor.

A combination of thirds and fourths works very well for mixed woodwinds (Ex. 109). Open position voicings also work very well (Ex. 110).

## EX. 109

(CONCERT SKETCH)

## EX. 110

(CONCEPT SKETCH)

RIT.

RIT.

This passage (Ex. 110) could be scored for several different combinations of woodwinds. Here are some of the possibilities:

1. Flute (or two flutes in unison) /oboe/English horn/clarinet/bass clarinet/bassoon.
2. Flute/clarinet/English horn/clarinet/bass clarinet/bassoon.
3. Flute and piccolo in octaves/English horn/bassoon/clarinet/bass clarinet/bass clarinet.
4. Oboe/clarinet/three alto flutes in unison/clarinet/bassoon/bass clarinet.
5. Flute and oboe in unison/clarinet and English horn in unison/  
French horn<sup>7</sup>/clarinet/bass clarinet/bass clarinet.
- 6. E♭ clarinet/oboe/English horn/clarinet/bassoon/bass clarinet.
7. Flute/clarinet/English horn/clarinet/bass clarinet/bassoon.

7. Though a brass instrument, the French horn blends extremely well with woodwinds, and is a member of every classical woodwind quintet.

Notice the contrapuntal motion throughout the passage, especially in the top three voices. Not only does this create melodic interest and motion, but in a mixed ensemble, it smooths over the "seams" created by the combination of dissimilar sounds.

In each of the various combinations listed above, the top three lines are given to noticeably different instrumental colors in order to create maximum contrast between them.

The instrumental color for each line in example number 110 was chosen to be consistent with our goal of maintaining proper relative intensity between all components of the ensemble.

For added insight into the art of combining dissimilar woodwind colors, the reader is urged to investigate some of the classical woodwind quintet literature—in particular, Samuel Barber's beautiful piece *Summer Music*.

### **PART THREE: COMBINING BRASS WITH WOODWINDS**

Now that we've discussed at considerable length the brass and woodwinds as separate entities, we'll devote the last section of this chapter to the illustration of various ways in which the two can be combined to create a wide range of tone colors.

We'll begin with a standard combination of brass and saxophones—the traditional big-band sound. It should be realized that there is no single correct way to write for a big band; there are several different styles which are equally valid. The choices an arranger makes in his voicing procedure are, to a degree, a matter of personal taste. Duke Ellington's approach is different from Neil Hefti's; Al Cohn's approach is different from Bill Russo's—there are even some differences in voicing technique between writers who belong to the same general school of big-band writing. Individual stylistic preferences are acceptable, indeed, inevitable. However, there are some basic principles of *craft* which should be understood and applied in order to achieve the best possible sound from any ensemble regardless of personal musical tastes.

As the basis for our discussion of big-band voicing, we will again use the short swing passage with which we illustrated the brass combinations in part one of this chapter.

Our first example combines eight brass and five saxophones in an attempt to achieve the kind of sound generally associated with the Count Basie and Woody Herman bands.

## EX. 111

(CONCERT SKETCH)

(UNTRANSPPOSED - SOUNDS AS WRITTEN)

4 TPTS. *f* *N.J. 85* *VIB.* *1-2-3*

4 TBNS. *f* *1-2* *3-4*

5 SXS. *f* *(A)* *1-2-3-4*

BASS *GL.*

GTR. *Cm9 Em7 A7+5 Eb9 D9 Ab9-5 G9 SUS 4 G13-9 (NO 11) C6 Dm7 Em7 Dm7 E7-5 Bb9 A9 A7+5 A7-9*

=

TPTS. *UNISON* *(SHORT DROP)*

TBNS. *1 2 3*

SXS. *1-2-3* *4-5*

BS. *Dm7 E7 F Dm7 Ab9 F# G9 (E) Dm7 Db9 C6 (F) D#13 (G) Cm13 (H)*

## Footnotes to Ex. 111

- A *The saxes are voiced compactly in the high register in order to reinforce the trumpets, which are in their middle register. Notice the absence of chordal roots.*
- B *The saxes hit a low pedal tone momentarily. The brass are in unison, for contrast, and to avoid having the low trombones clash with the top saxophone note.*
- C *The saxes are spread out a little more now, for richness^and to prepare the ear for the next two chords, which are voiced in open position. The saxes have not moved strictly parallel with the brass, which is permissible. The only notes not doubled by the brass in the low register are the second tenor's F and E. These notes are included in order to give the sax section a complete chord. Notice the chordal roots (B\>-A) doubled by the baritone sax and fourth trombone—an exception to the general rule because of a need for chord completeness within the sax section.*
- D *The saxophone voicing is now drastically different. The section is divided into three tines. The baritone doubles the bass trombone. The altos and tenors are voiced in sixths, for good internal resonance; the tenors giving support to the first trombone (who is all alone), and the altos starting out doubling the second trumpet a sixth above. Notice how the alto line deviates from the second trumpet line momentarily on the third beat of bar five, creating a slightly more interesting melody.*
- E *In bar six, we avoid the low register in order to inject a little textural contrast between bars five and seven.*
- F *In the last two chords in bar six, the baritone is all alone. Here again, this voicing was chosen for its completeness within the section.*
- G *Notice the absence of fifths (A\> and G) in the last two chords. As I mentioned earlier, these chordal tones can sometimes weaken the vibrancy of a voicing.*
- H *The first tenor is all alone on the F\ in its middle register. Again, I chose this voicing for maximum vibrancy and completeness of sound within the section.*

The voicing used here is designed to produce a lean, vibrant sound, with the emphasis on the rhythmic aspect of the musical phrase. In other words, above all else, swing!

Several factors contribute to this end. Logical voice leading and continuity of melodic line (as we mentioned earlier) are extremely important in trying to achieve an effective big-band swing feeling. Notice the relatively simple harmonic structure; four-note chords predominate. There are a few five-note chords at emphasis points, and only two six-note chords at the final cadence.

As a general rule, *the simpler the harmonic content; the more vibrant the overall sound will be.* The reason for this should be fairly obvious. If you have only four tones in a concerted chord, played by thirteen instruments, each note of the chord will be duplicated—and thus reinforced—several times.

Notice how the saxophones are voiced in relation to the brass: overlapping the trumpets and trombones, lending support in various ways according to the bend and flow of the music, always as an element *added to the brass, not integrated with them.* In passages played at a volume of *forte* or louder, saxes generally are not able to project with the same degree of intensity as the brass. Consequently, in large ensembles of this kind, the brass section should be voiced as a separate entity, and the saxophone section then *added* to the brass, giving support where it is needed most, yet voiced in a way which will also enable it to sound *complete within itself* while still contributing to the overall ensemble sound. This is extremely important when your ensemble combines instruments of different timbre and projection, *especially in a recording studio.* Normally, when recording a mixed instrumental group, a separate track is allocated to each section, isolating it to a degree, until the recording session is finished. At that time, the individual sections are balanced and mixed together to create a unified overall sound. Despite this mixing of elements, one section or another may predominate momentarily, slightly disrupting the blend; this is unavoidable. If the individual sections are scored in a way which will enable them to sound as complete as possible within themselves, however, momentary variances in overall texture will be less noticeable. In large brass sections of eight or more players, it is also possible to treat the individual trumpet and trombone sections as separate (but conjoined) entities. As the size of the brass section diminishes, however, this becomes impossible. For a discussion of recording techniques, please refer to Chapter Eight.

Compare example number 111 with the following one—the same passage voiced incorrectly.

EX.112 (INCORRECT)

(CONCERT SKETCH)  
(UNTRANSPOSED-SOUNDS AS WRITTEN ) VIB.

4 TPTS. *f*

4 TBNS *f* (E)

5 SXS. (A) (B) (C) (D) 1-2-3-4 (F) (G)

BASS (GTR.) *f*

Chords: Cma9, Em7, A7+5, Eb9, D9, Ab9-5, G9sus4, G13-9, C6, Dm7, Em7, D#m7-5-7-9, Bb9, A9, A7+5, A7-9

GL.

==

TPTS. UNISON (SHORT DROP) (K)

TBNS. 1:2:3 7:4

SXS. (J) (L)

BS. (H) (I)

Chords: Dm7, Eo7, Dm7, Ab9, G9, Dm7, DbMa9, C#9, Db13, CMa9

*There are many common voicing errors in this example:*

- A One basic fault throughout this whole passage is illustrated in the first few beats; the persistent overuse of chordal root tones in the baritone sax. This practice results in a thick, overripe sound, quite the opposite of the lean sound we have been trying to achieve. Also contributing to the effect is the rather low register in which the entire sax section is voiced, giving no support to the trumpets.*
- B The lead alto, wedged in between the fourth trumpet and first trombone, is playing the ninth of the chord (E) all by itself. Not only will this be lost in the overall sound, but it also interrupts its doubling of the lead melody for no good reason.*
- C This voicing for the saxophones will sound incomplete and unsatisfying within the section, largely because of the wide space between the second tenor and the baritone. Also, the two chordal minor ninths (Ab), which are already duplicated in the brass will tend to make the ensemble sound harsh.*
- D This low C (together with the preceding low root tones) negate the effectiveness of the saxophones' G pedal on the second beat.*
- E The trombone section, voiced in four-way chords (unlike example 111 in which they were in unison) intrudes upon the top saxophone G, thereby negating its effectiveness.*
- F Here we have two chordal fifths in the saxophones. A very bland, unsatisfying sound for this kind of a swing passage.*
- G The saxes duplicate the trumpets an octave lower, filling up the "holes" we left before in this place. Not only does this negate the contrasting open effect we achieved before, but it also smothers the ascending trombone counterline in bar five.*
- H Here the chordal root Ab was inserted in place of the connecting F#, destroying the effect of contrary motion.*
- I The baritone continues to stay in the low register—not enough contrast*
- J The saxes, instead of helping the top trumpets, who are in a fairly low register, duplicate the already strong trombones, emphasizing the Une E, Eb, D—much too weighty. Also, the extreme low register in the baritone, to some degree, weakens the overall effect of the short drop.*
- K The voice leading in the second and third trumpets is bad here.*
- L The baritone doubles the bass trombone, giving unnecessary weight to the chordal root. One or the other can handle it easily—not both. The last two saxophone chords are very awkward. Notice the way the sax notes are placed in between the brass notes. Here an attempt was made to integrate the saxes with the brass, making the sax section less effective as a separate entity, and disturbing the clarity of the total ensemble sound.*



Here is the same passage as it might be scored for a smaller band.

Ex. 113

(CONCERT SKETCH)

3 TPTS.

3 TBNS. (TENOR TBNS.)

5 SXS.

RHYTHM

Chords:  $Cm^9 Em^7$   $A^7 \frac{1}{2} E^b13$   $D^9$   $A^b13$   $G^9$   $G^7-9$   $C^b$   $D^{\#}m^7-5 E^{\#} \frac{1}{2}$   $B^b9$   $A^9$   $E^b7$   $C^{\#}$

==

TPTS.

TBNS.

SXS.

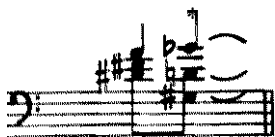
RHY.

Chords:  $Dm^7$   $E m^6$   $E$   $F$   $A^{\#}7$   $\sim F^{\#}$   $C^9$   $Dm^7$   $D^{\#}7$   $C^{\#}$   $E$   $D^{\#}13$   $Cm^13$

As you can see, I've altered the harmony slightly in places for variety, and because this particular ensemble calls for its own individual sound, different from the one obtained from the voicing in example number 111. You will find that a given instrumental combination will lead you to make certain choices in harmony, voicing, and melodic treatment which will be different from choices you'll make with another ensemble, even if the difference between them is as small as one instrument more or less. No one set of scoring procedures can or should be made to fit ensembles of different sizes; this practice is both unnatural and unmusical. Compare example number 111 with 113 for these differences.

In order to avoid confusion, I'd like to point out and explain two places in example number 113.

A. In the last two chords of bar three (  $D^{\#}m7-5$ ,  $E7-5$  ), I momentarily suspend my rule about having the brass section sound as a complete entity. In the first chord, the root is absent. In the second chord, the brass voicing contains no  $G^{\#}$  —the chordal third. Had I voiced the trombones this way,



the brass section would have sounded more complete, but we would then have sacrificed maximum brilliance and smooth voice leading in favor of "completeness," which, in this large ensemble, is unnecessary, since the full five man saxophone section can be used to provide enough body to adequately fill out the chords.

B. In the last three chords of bar six, I temporarily suspend my rule about not doubling the baritone sax with the bottom trombone—for two reasons:

(1) The notes are in the lower middle register and can benefit from the added strength. Had the notes been written an octave lower, I would have used only the baritone sax. (2) The last chord of this group of three is voiced with the chordal third on the bottom. The E is not used anywhere else. The added strength given it will enable the third to resound through the entire voicing.

Now let's examine this same passage voiced for a still smaller band.

*EX. 115*

(CONCERT SKETCH)

3 TPTS.  
f  
1-2 3

2 TBNS.  
f  
UNB.

4 SXS.  
f  
1 ALTO  
2 TENORS  
1 BARI.  
1-2 3 4

TPTS.  
TBNS.  
SXS.

2 3 4

We can still create an exciting big-band sound with this smaller ensemble. However, in order to achieve the desired body and dynamic punch, we should, as much as possible, reinforce the lead trumpet melody with a trombone an octave lower. Consequently, it becomes impossible to always give a complete chord to the brass section; the saxes must be used to fill out the missing notes of the harmony. *The saxophone section, however, still maintains its completeness.*

Any ensemble smaller than this becomes, to my mind, a large combo. It is still possible to create a big-band type sound with such an ensemble, as has been proven by the successful jazz-rock group, Blood, Sweat and Tears. This band generates a lot of excitement with four or five horns (most of the musicians play more than one instrument) organ, bass, guitar and drums. A typical Blood, Sweat and Tears voicing might look like this.

EX. 116

(CONCERT SKETCH)

This musical score is for the instrumental introduction of "The Sound of Silence" by Simon & Garfunkel. It is written for a five-piece band: Trumpet, Alto Sax / Trombone, Organ, Guitar, and Bass. The key signature is one sharp (F#), and the time signature is common time (C). The score is divided into two systems, each containing five staves. The first system shows the initial melodic lines for the trumpet and organ, with the organ playing a complex, arpeggiated pattern. The second system continues the organ's melody and introduces a bass line. The guitar part is indicated by a series of slanted lines, suggesting a specific playing technique or a simplified notation. The bass line provides a steady, rhythmic foundation. The score includes various musical notations such as notes, rests, and dynamic markings like *ff* (fortissimo) and *p* (piano).

**TRUMPET, TRUMPET**

**ALTO SAX / TROMBONE**

**HORNS**

**ORGAN**

**GUITAR**

**BASS**

**TBN.**

**G#4<sup>TH</sup> CHORD**

**E<sup>b</sup>7+9**

**ff**

**p**

[illegible]

Notice the bright register, the semi-open voicing, the use of chords built in fourths, and the strong unisons and octaves at the end of the passage—all calculated to give the ensemble as big a sound as possible. The organ usually doubles the horns giving the overall sound extra body and brilliance. On many recordings, the horns also overdub themselves (record their parts more than once and superimpose the tracks later), giving the ensemble sound an added dimension.

Chicago, another prominent jazz-rock band, uses the same techniques to achieve a similar sound, although they have only three horns. For an illustration of the basic Chicago voicing, look again at example number 116 and eliminate the lowest horn line.

As you can see, it is possible to obtain a dynamic sound with a small group of instruments. Now I'll demonstrate the reverse principle—where in a larger body of mixed horns is voiced in a manner designed to achieve an intimate, mellow sound.

## EX. 117

(CONCERT SKETCH)

This voicing produces the beautiful sound created by the short-lived but extremely influential "Birth of the Cool" nonette led by Miles Davis in the late 1940's and later also used in various recordings by Gerry Mulligan and Shorty Rogers.

When a soft, controlled sound is desired, as is the case here, the disparity in projection between trumpet or trombone and saxophone or French horn becomes negligible. Unlike the big, forceful sound we were seeking in the earlier examples wherein every horn was blowing with almost maximum force, this one demands a greater degree of sensitivity and attention to collective blend from each player.

Before we end our discussion of brass-and-saxophone combinations, I would like to illustrate two more styles of big band scoring which differ considerably from the one which formed the basis for examples number 111, number 113, and number 115. You will recall our main goal in scoring these examples was the creation of a *dynamic, yet mobile* voicing, relatively simple harmonically and melodically; in general, a solid, middle-of-the-road, homophonic jazz sound. On either side of this approach lies another—one more complex harmonically, the other more complex melodically.

Example number 118 is excerpt from a Bob Brookmeyer original, "Samba Gon' Getchu," written for the Thad Jones-Mel Lewis band.

*EX. 118*

( CONCERT SKETCH )

(CONCERT SKETCH)

4 TPT

4 TBNS

5 SXS.

CHORDS

BASS

mf

Gm7

Abm7

Cm7

Dm7

Eb

F7-9

Bb

**TPTs.**  
**TBNS.**  
**SXS.**  
**BS.**

Musical score for "The Rose Tree" featuring TPTs, TBNS, SXS, and BS. The score includes vocal lines with lyrics and a bass line with chord symbols.

Chord symbols: B<sup>b</sup>, B<sup>b</sup>m7, Cm7, D<sup>b</sup>, E<sup>b</sup>7-9, A+7-9, D+7-9.

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The emphasis here is not on the rhythmic pattern nor the melody, but *oft* harmonic aspect of the musical phrase, most of the chords contain<sup>n</sup> 8 six tones or more. There is very little doubling in this voicing; the arr<sup>er</sup> has forsaken maximum vibrancy in favor of harmonic density and richness. The late Gary McFarland also employed this kind of construction<sup>011</sup> in many of his scores. This approach to ensemble scoring is most<sup>1</sup> successful when the melody moves in relatively long-note values, allowing the richness of the harmony to establish itself.

A\* I mentioned earlier in the chapter, when you are using cluster harmony<sup>ts</sup> is advisable to contrast it with passages of lighter texture in order to provide adequate variety.

Notice how the brass and saxophone sections are again voiced as separate entities, each one a complete-sounding unit.





This voicing is also comprised mainly of six-note chords. Although the passage is a rhythmic one, the composer did not strive for a tight mobile sound. Instead, he opted for a wide-open voicing throughout the emphasis on the low register, in order to project a feeling of density and power.

Notice how this voicing differs from the one illustrated in example number 111.

1. Except for the first bar, there is no octave doubling in the trumpets; each one plays a different chord tone.

2. There is no doubling of trumpet notes by the saxophones. The sax section is placed in a relatively low register throughout, where they double the trombones.

3. A spread voicing is maintained for the saxes throughout the phrase, with a constant low baritone sounding the root tones.

Once again, notice how each separate section is voiced as a complete-sounding entity.

In contrast to the above harmonically oriented voicings, I'd like to show you an example of the opposite side of the coin—a classic illustration of melodically oriented scoring.

## EX. 120

(CONCERT SKETCH)

4 TRUMPETS  
4 TROMBONES  
4 SAXES  
BARI. SX a BASS TBN  
BNP

=

TPTS. OIV  
f i r 5^

=

4  
T j T r r T -  
r - Jr i\* Tr  
J r d  
I - y - i r J p

Used by Permission, Bill Holman

This is an excerpt from a Bill Holman composition, "Kingfish"-linear writing at its best. Unlike examples number 118 and number 119, which emphasized big concerted chords, this type of scoring is concerned with achieving a loose, almost improvised feeling through the use of multiple unison. The chords are secondary, formed only as a result of momentarily converging strands of artfully woven counterpoint.

Gerry Mulligan's "Young Blood," one of the great big-band charts of all time, is another prime example of this melodically oriented approach to ensemble scoring.

Up to this point, we have focused our attention on the various ways in which brass may be combined successfully with saxophones in order to create good big-band sounds. Now we'll examine some voicings in which various brass instruments are mixed with other woodwinds in order to achieve more subtle and unusual color combinations.

A very simple but useful sound, especially good for recordings, can be achieved by placing one flute an octave above the lead trumpet in a brass ensemble. The flute gives the overall sound a nice clean edge. For an aural demonstration of this sound, please listen to recorded example number 10.

A piccolo placed two octaves above a brass ensemble produces a hard, penetrating sound. In order to modify this shrill quality, I sometimes bring the piccolo down a few tones, having him double the second trumpet instead of the lead. Recorded examples number 11 and number 12 will demonstrate these two sounds.

The bright, pixieish quality of a flute in unison with a harmon muted trumpet has become Quincy Jones' trademark. Muting the trumpet with a cup instead of a harmon produces a softer, more intimate sound. To achieve a slightly crisper quality, place the flute an octave above the trumpet.

This sound can be extended to include several muted trumpets doubled an octave higher by the same number of flutes.

#### EX. 121

(CONCERT)  
(SKETCH)  
3 FLUTES

3 TRUMPETS  
(CUPS OR HARMONS)

*mf* A m<sup>7</sup>

The musical score for Example 121 is written for 3 flutes and 3 trumpets (cups or harmon). It is in G major (one sharp) and 4/4 time. The score consists of a series of chords and a triplet of eighth notes in the final measure. The tempo/mood is marked 'mf' and the key signature is 'A m<sup>7</sup>'.

A typical Gil Evans voicing combines two harmon muted trumpets over a single flute in close position (Ex. 122).<sup>8</sup>

## EX. 122

F DORIAN MOOE

(CONCERT SKETCH)

Here is another example of a voicing combining flutes and muted trumpets which proved successful in a recent Freddie Hubbard recording.

## EX. 123

(CONCERT SKETCH 1)

8. This is a good example of a voicing which must be carefully balanced electronically in order to be successful.

Flutes also blend extremely well with flugelhorns and other quiet brass, as illustrated in this passage extracted from a score I did for a Paul Desmond album.

EX. 124

(CONCERT SKETCH)

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In our earlier discussion of saxophones combined with brass, we emphasized the importance of maintaining completeness of sound within each section. This is also important when voicing other woodwinds with brass. *Whenever possible, voice each separate body of instruments as a complete-sounding entity within the total ensemble sound.* As I've stressed before (and will again because it is so important), in a modern recording studio, the reeds and brass are normally recorded on separate channels<sup>9</sup> in order to achieve a clean sound. This separation of elements must be considered carefully by the recording arranger when he makes his decisions during the construction of an arrangement.

9. In the old days of mono recording, this separation wasn't possible. The equipment was much less sophisticated; consequently, the manner in which an arranger combined various elements was much less critical than it is today.

In example number 124, the three flutes are voiced in fourths, exactly duplicating the two flugelhorns and French horn below. Each separate section projects a warm, satisfying sound. The trombone is the only instrument in the voicing whose notes are not duplicated. Had we voiced a fourth reed (a bass clarinet or bassoon) in unison with the trombone and recorded it on the reed track with the flutes, we would have created a problem. The disparity in register and tone color between the high, clear flutes and the low, subtle reed would have made a satisfactory woodwind blend difficult to achieve. If the arranger really feels a need for this kind of doubling within the voicing, the high and low reeds should be placed on separate tracks.

I'd like to give another example demonstrating this important principle. I'll combine two French horns and three clarinets in a low to middle register voicing, normally a very pretty sound, very useful for subtle background chords.

French horns and clarinets are very compatible and, under most conditions, blend very readily. In fact, when horns and clarinets are placed together as a section, the difference in timbre between the two can become almost indistinguishable. Even so, there are certain guide lines one should bear in mind when combining them in a concerted chordal voicing.

EX. 125  
(CONCERT SKETCH)

The horn sound is the primary color and will predominate. Except for reasons dictated by logical voice leading, I wouldn't separate the two horns by an interval wider than a fifth or minor sixth; this tends to diffuse the horn sound and possibly create intonation conflicts.

The clarinet sound is the supportive element in the voicing. Because the reed texture offers a little contrast to the French horn, I always try to give the clarinets any important *passing tones*.

The three clarinets form the bottom of the chord. In order to have them project a unified sound as a separate section, I try to *maintain the consonant interval of a third (or a tenth) between any two clarinets* as much as possible. This will also help to create an homogenous blend between the horns and clarinets—even if they are physically separated in the recording studio.

In the next example, I've violated every one of these guide lines.

EX. 126

(CONCERT SKETCH)

There are many conceivable woodwind-with-brass voicings; finding them is largely a result of experimentation.

Some combinations may, on paper, look as if they should work well, but do not. Just as often, the opposite proves to be true; an ordinary-looking voicing may turn out to be extremely successful.



Y'ur guesses, however, can be informed ones, based on your knowledge of the capabilities of each of the instruments you are considering for your voicing. For instance, this voicing (Ex. 127) would be very hard to balance successfully. The rather shrill clarinet would overpower the flute (the high French horns would reinforce the clarinet an octave below, adding still more weight to an already strong sound, and would also cover the flugelhorn; and the bassoon, unless artificially overbalanced, would not project enough power to hold up its end.

EX. 127

CLARINET  
FLUTE  
OBOE  
FR. HN.  
FR. HN.  
FLU6ELHN.  
TBN.  
TBN.  
BASSOON

The overall blend would be much more successful if the notes were distributed this way.

EX. 128

FLUTE  
CLAR.  
FLU6ELHN.  
FR. HN.  
FR. HN.  
TBN. B-E-  
TBN.  
BSCLAR.

Before combining a group of instruments, consider each one separately: its tone color and weight, its register, and its relation to the instruments surrounding it. The following chart should be helpful.

*PICCOLO*—bright, penetrating tone—can be used with open or muted brass.

*FLUTE*—clear tone with very good projection, especially in the upper register—may be combined with open or muted brass.

*ALTO FLUTE*—limited projection—should be doubled—only useful in conjunction with soft brass.

*BASS FLUTE*—extremely limited carrying power—not recommended for use in mixed ensembles.

*OBOE*—substantial tonal weight, but nasal quality limits its ability to blend effectively—not especially recommended for use in mixed ensembles.

*ENGLISH HORN*—lovely color, but limited projection when used in mixed combinations—best used in unison with a clarinet as a lead line over soft brass.

*CLARINET*—piercing high register—can be overpowering in mixed combinations. Use only when a shrill quality is desired. Middle to low register is jewel-like, enabling it to blend especially well with mellow open brass (flugelhorn, French horn, etc.) or muted brass.

*BASS CLARINET*—low register is capable of standing up to middle register open brass, if not too loud—especially good when used underneath French horns and trombones.

*BASSOON*—limited projection—no edge—not recommended for use in combination with open brass—can be heard with soft or muted brass, especially when placed in the low register.

In order to achieve maximum clarity in mixed voicing, I usually place the woodwinds above or below the brass, instead of interspersing the two. Naturally, there will be exceptions, but these will generally be very subtle color combinations, demanding careful electronic balancing in order to be successful, as is the case with many of the original sounds created by Gil Evans—a great arranger who has been especially resourceful in creating fresh mixed ensemble voicings. His albums for Miles Davis are full of gorgeous, glowing colors. I emphatically urge the student to listen repeatedly to these records; they are a real source of enlightenment and inspiration. When it comes to orchestral color, Gil Evans is the master painter.

To conclude this chapter, I'd like to present a few short examples of mixed ensemble voicing which have proven successful in scores done for recent recordings. After examining them, the student is urged to try his own variations. New color combinations are waiting to be discovered.

EX. 129

/CONCERT SKETCH I U)  
FLUTE' U)  
CLAR' K  
I E  
TPT. 1 m/  
TPT. 2  
( IN HARMONIS)

BRIGHT CUTTING EDGE  
GOOD FOR STACCATO ACCENTS

EX. 130

(CONCERT SKETCH)

TVOCING OUPPLICATEO BY ELECTRIC PIANO)

LEÃO MELODY

11 rfi T4 - 3m

J - J - J - /kifex ELHORN 7 ^ rb-j)

EL. PNO. Y' P -

BASS + EL. PNO.

CLAR. + ENG-HN.

FM

FLYK? FLUJGL, fmp

TRHN. TB jfyj

BSN. + BS.

WOOOY REEO TONE ON LEÃO-SOFT BRASS UNDERPINNING-GOOD BLEND.

EX. 131 CONTINUOUS CHAIN OF COMPATIBLE SOUNDS WITH SLURRED, RARELY DISCRETE CONNECTIONS.  
(TRANPOSED SCORE)

The musical score is for a wind ensemble and includes the following parts and markings:

- FLUTE:** Two staves. Dynamics include *p*, *mp*, and *pp*. Includes *AD LIB.* markings.
- OBOE:** One staff. Dynamics include *p*, *mp*, and *pp*. Includes the instruction *(NO CRESC.)* and the word *MELODY*.
- BASS CLARINET:** One staff. Dynamics include *p*. Includes the instruction *SOLO*.
- TRUMPETS:** Two staves (1 and 2). Dynamics include *p*. Includes the instruction *CUP MUTE*.
- TROMBONES:** Three staves (1, 2, and 3). Dynamics include *p* and *pp*.
- TUBA:** One staff. Dynamics include *mp* and *pp*. Includes the instruction *SOLO (MUTED)*.

The score features a continuous chain of compatible sounds with slurred, rarely discrete connections. The key signature is one sharp (F#), and the time signature is 4/4. The score is marked with various dynamics (*p*, *mp*, *pp*) and includes performance instructions such as *AD LIB.*, *SOLO*, *SOLO (MUTED)*, and *CUP MUTE*.

## EX. 132

GOOD BLEND BETWEEN REEDS AND MUTED HORN - PRODUCES A CLEAR SPANISH FLAVOR.

(CONCERT SKETCH)

## EX. 133

THE 8<sup>va</sup> PICCOLO LEAD GIVES CLARITY TO THE HIGH VOICING  
 THE CLARINET AND FRENCH HORN UNISON GIVES CLARITY  
 TO THE LOW VOICING.

(CONCERT SKETCH)

## EX. 134

A SONOROUS "GIL EVANS" TYPE SOUND. THE ALTO FLUTE MELODY  
 IS REINFORCED BY THE BARITONE HORN AN OCTAVE LOWER. THE  
 HIGH PICCOLO REINFORCED BY THE FRENCH HORN, ACTS AS AN  
 OVERTONE OF THE CHORD BELOW.

(CONCERT SKETCH)

## EX. 135

A VERY TENSE SOUND. AGAIN, THE PICCOLO (WHOSE NOTES ARE NOT DUPLICATED) ACTS AS A HIGH OVERTONE OF THE CHORDS UNDERNEATH - FEU, RATHER THAN HEARD AS A DEFINITE RTCH.

## 1 CONCERT SKETCH)

PICCOLO  
FLUGL. + FR. HN.  
FLUGL. + FR. HN.  
FLUGL. + BARI. HN. JT

## EX. 136

## 1 CONCERT SKETCH)

PICCOLO-  
J. CLAR.  
ENG. HN.  
TFT.  
TPT.  
TBN.

A VERY DISSONANT, "SPIKY" SOUND, UNUSUAL IN TWO RESPECTS:

- (1) THE INCLUSION OF THE ENGLISH HORN (PLAYING IN HIS EXTREME HIGH REGISTER)
- (2) THE HARSH, INCOMPLETE SOUND OF THE WOODWIND VOICING CONSIDERED AS A SEPARATE ENTITY

*Atte ag<sup>LLI</sup>*

## CHAPTER THREE Strings

Most arrangers acquire years of experience with wind instruments before they have an opportunity to score for strings. As a result, a novice string writer (unless he is lucky enough to have found a competent teacher) will tend to use the concepts he has found to be successful for brass and reeds in his initial attempts at arranging for strings. To my amazement, I have even seen this attitude encouraged in arranging manuals ("*voice the strings just as you would a sax section*"). The arranger following this outdated and misleading advice will find the results extremely disappointing. Strings cannot be scored like any other body of instruments—they are a completely separate and highly individual entity, demanding from the arranger a good deal of sensitivity, patience, and concentration in acquiring the proper techniques for achieving the best results from any string ensemble—from a trio to a complete symphonic complement of fifty or sixty players.

I feel that strings are more difficult to orchestrate effectively than any other instrumental group, for the following reasons:

(1) Unlike most wind writing, where any given ensemble line is carried by a single player, strings are usually voiced in a manner which involves more than one player on a part;<sup>1</sup> the proper distribution of these unisons within a string ensemble voicing gives the overall sound a beautiful glow.

(2) The weight of tone and carrying power of string instruments is much more limited than with wind instruments. You can see this disparity clearly in any symphony orchestra—the strings comprise more than half the total instrumental body. As a general rule, playing with a similar volume indication, a group of twelve to sixteen violins is just about equal in weight to one wind instrument. Naturally, various factors can modify this rule (extreme registers, unusual acoustics, etc.), but I find it to be a normally valid and reliable guideline.

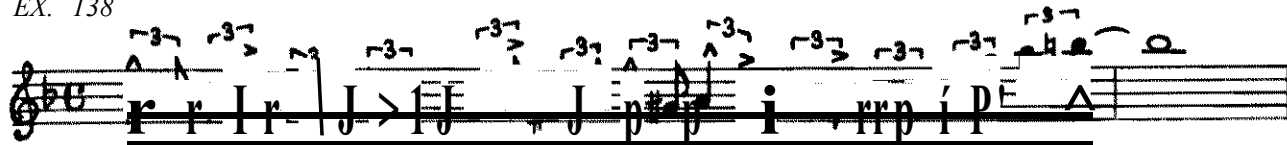
1. Except for small chamber groups—trios, quartets, and quintets.

(3) The unique character of string tone demands a different kind of melodic motion than would be suitable for brass or reed instruments. This is especially important in passages involving jazz phrasing. String players generally take the written note literally; for instance, example 137 would be played by jazz instrumentalists (trumpets, saxophones, etc.) with a relaxed, flowing, almost *LA* feeling—as shown in example 138. ®

EX. 137



EX. 138



Most string players, however, never having played in a jazz ensemble, will play it just as written—in strict eighth notes. There have been several attempts to get a large string ensemble to swing, but to my knowledge, none has ever been very successful.

(4) Strings are capable of producing a wider tonal range and a more extensive variety of tone colors and effects than wind instruments; as a result, the arranger must constantly adjust his manner of scoring in order to take advantage of, or compensate for, the vagaries which this wide tonal vocabulary presents.



Scoring for strings can be complicated, but through discussion of these and other important factors, we will try to eliminate as much confusion as possible.

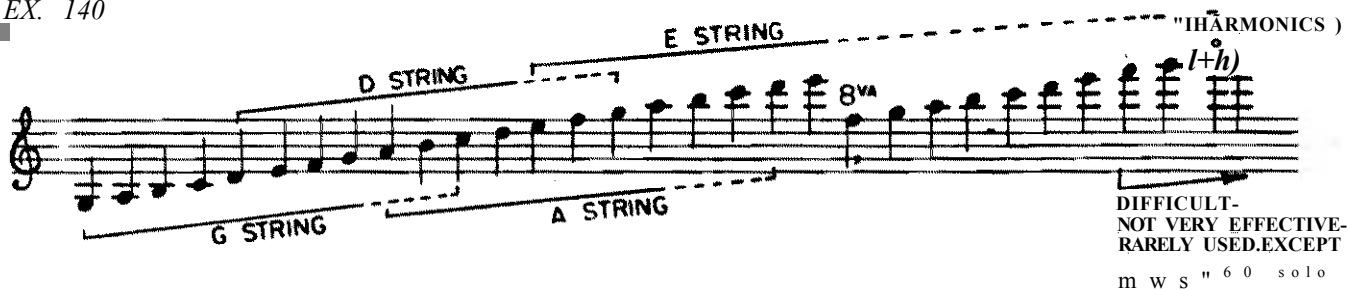
## VIOLIN

### EX. 139 OPEN STRINGS



The violin has a wide range encompassing more than four octaves.

### EX. 140



Each of the four strings has its own individual character. On the violin, as on all other string instruments, the highest and lowest strings project more strength and sonority than the two inner ones.

The high E string can be sweet, forceful, strident or ethereal, depending on the dynamics and bowing techniques employed. It is made of thin steel and naturally produces a more brilliant tone than the other three strings. The low G, made of gut with silver wire wound around it, is the heaviest of the four. The added weight enables it to produce a warm, rich tone.

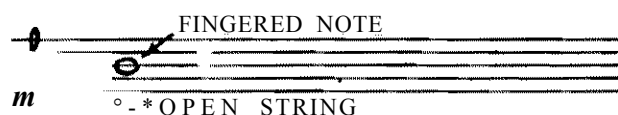
In most passages, a violin line demands the use of more than one string. The violinist automatically makes the change of string in a way which best preserves the continuity and expressivity of the music.

Sometimes, in order to achieve a consistency of timbre, an arranger may want an entire line played on only one string. In such cases, *sul G* (or *sul D* or *A*) is indicated with a dotted line continuing as far as the effect is desired.

### Multiple Stops

It is possible to produce two notes simultaneously on any two adjacent strings—this is called a *double stop*. It is indicated with a bracket.

EX. 141



If one of the two notes in a double stop is an open string (as in example number 141) it is very easy to play. In fact, a unison double stop combining an open string and a fingered string can be effective.

EX. 142



If both notes of a double stop are fingered, the interval should be no smaller than a major second nor larger than an octave. When scoring double stops, the arranger should be aware of the physical demands involved in changing from one combination of notes to another.

Three things will make the execution of a group of double stops easily playable: (1) the use of open strings whenever possible (Ex. 143); (2) the avoidance of radical changes in hand position (Ex. 144); (3) the maintenance of one of the two notes between two separate double stops (Ex. 145).

EX. 143



EX. 144



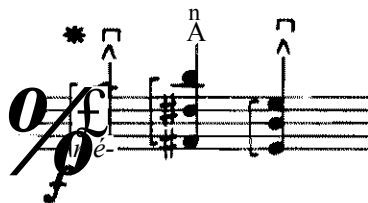
\* NECESSITATES RADICAL CHANGES IN HAND POSITION INVOLVING TWO FINGERED STRINGS SIMULTANEOUSLY.

EX. 145



Triple stops are possible when the chords are played with enough force to depress the middle string.

EX. 146



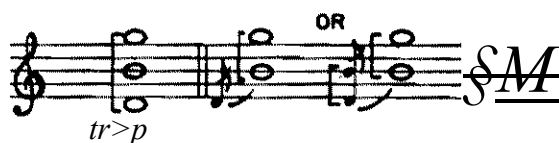
\* THIS MARKING INDICATES A DOWN BOW, NECESSARY FOR MAXIMUM POWER, NORMALLY USED FOR ACCENTED NOTES,

Sustained triple stops are possible only for notes of limited duration—no longer than a half note at medium tempo. For this reason, they are impractical from an arranger's standpoint. I use them only in solo cadenzas.

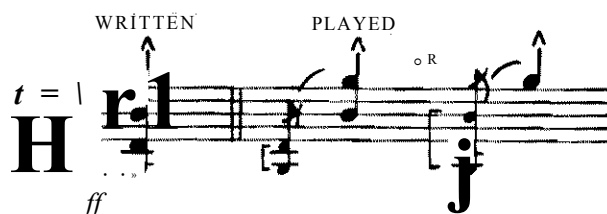
Triple stops that require the sustaining of a part of the chord can be achieved by arpeggiating the three notes in various ways.

**EX. 147**

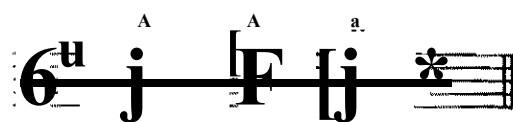
WRITTEN    PLAYED



*Quadruple stops* are impossible to perform exactly as written (Ex. 148). They are used only when maximum force and power are necessary. The admonition about maintaining a common tone between double stops also applies to triple and quadruple stops. It's a good idea to try to incorporate at least one open string in a multiple stop in order to facilitate its execution.

**EX. 148**

To achieve maximum sonority as well as ease of playing, the notes of the chord should be spread in an open voicing, as in examples number 146, 147, and 148, instead of in a tightly cramped configuration as below.

**EX. 149**

PLAYABLE BUT AWKWARD.

In sustained passages, I sometimes use double stops, but except for use in chamber music, string players (especially violinists) generally dislike them. They feel that double stops can impair intonation and limit the degree of expression with which they can color a musical line, especially in the lead violins. It's a good idea to discuss points like this with your concertmaster before a recording session.

The following discussions of color effects and bowing techniques, apply to the viola, cello, and bass as well as the violin.

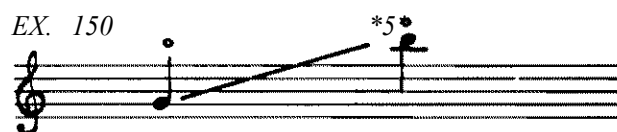
## COLOR EFFECTS

## Harmonics

If a violin string is lightly touched with the left hand at various mathematically precise points or "nodes" along its length, the vibration of the string is limited, producing harmonics. If the fundamental tone is that of an open (unfingered) string, the harmonic is *natural*. If the string is simultaneously depressed with the first finger and a node lightly touched with the fourth finger, the resulting harmonic is termed *artificial*. Both produce the same delicate airy sound.

From an arranger's standpoint, it isn't necessary to differentiate between the two—any good violinist will combine the two types of harmonics in a way which will enable him to execute a passage as fluently as possible.

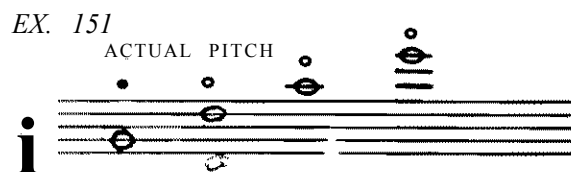
The complete range of violin harmonics is shown below.



In some classical scores, I have seen even higher harmonics indicated, but I don't recommend extending this basic range.

There has been a good deal of confusion about the best way to notate harmonics.

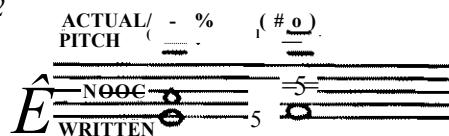
Natural harmonics are indicated this way.



The note shows the desired pitch; the small circle indicates it is to be played as a harmonic.

Most symphonic composers indicate artificial harmonics this way.

EX. 152



The bottom note is fingered; the diamond indicates the node which is lightly touched; the *actual pitch* is the harmonic sounded.

I find this method of notation tedious and cumbersome. Since the method of notation relates more to violin technique than to actual sound, I prefer to indicate all harmonics by writing in the actual pitch desired with a little circle above the note (as for natural harmonics) or, if a group of notes is to be played, I write the word *harmonics* at the beginning of the passage and extend a dotted line to the end of it.

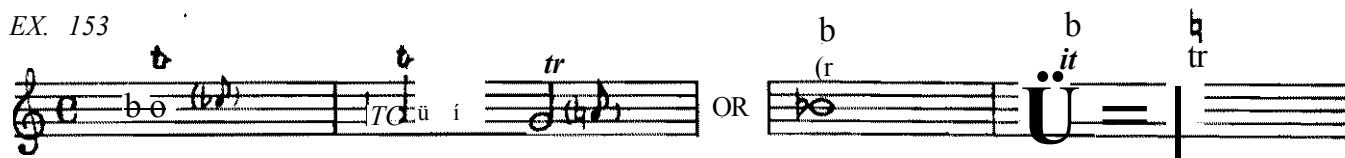
A velvety, transparent sound can be obtained by drawing the bow over the strings at a point on the fingerboard farther from the bridge than one would when playing with a normal tone. This beautiful effect is called *sul tasto* or *sur la touche*. I use it frequently, especially with large string ensembles.

The opposite of *sul tasto* is *ponticello*, a glassy, chilling effect achieved by drawing the bow over the strings close to the bridge. This effect is often combined with bowed tremolo. (See following: Bowing Techniques.)

When the bow is turned over and the strings are struck or tapped with the wooden part, a dry, almost colorless tone quality is produced; it is designated *col legno* (with the wood). This technique is not really effective for any kind of sustained line; its usefulness is limited to staccato rhythmic effects.

The rapid alternation of minor or major seconds is a *trill*. To avoid confusion, I usually indicate the pitch of the upper note.

EX. 153



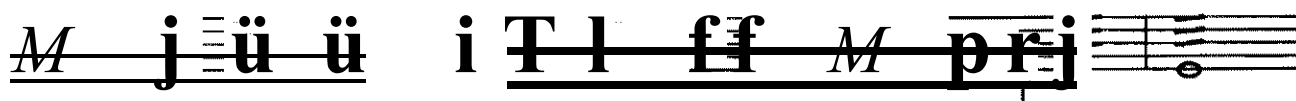
A trill between two notes encompassing an interval larger than a major second is a *fingered tremolo*. It creates a blurred, rustling effect, quite beautiful, especially for a large body of strings. It is notated this way.

EX. 154



*Bowed tremolo* is a similar effect created by sustaining a single note while rapidly alternating upward and downward bow strokes. It is indicated this way.

EX. 155



If the passage incorporating this effect is fairly long, I just write *tremolo* on the part and extend a dotted line to the end of the passage.

*Portamenti* and *glissando* are two interchangeable terms used to indicate an effect created by sliding the left hand up or down between two notes on the same string. It is indicated this way.

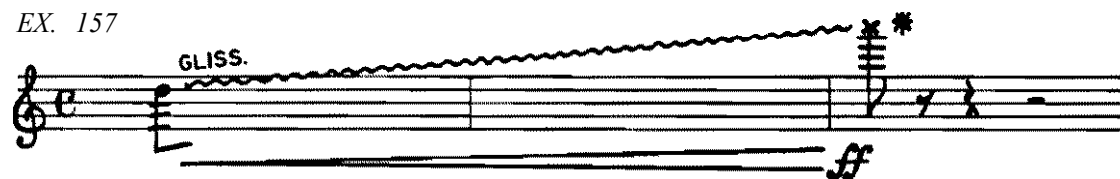
EX. 156



This effect must not be overdone or it can become annoying.

In several arrangements, I have used *glissando* in combination with *bo<sup>l</sup> ed tremolo* to good effect. I indicate the combination of the two thii way.

EX. 157




# INDICATES INDETERMINATE PITCH.

The effect produced by plucking the strings is called *pizzicato*, or more commonly by its abbreviation, *pizz*. Several different *pizzicato* effects are possible. The staccato sound created by plucking a string with one finger is the one most often used. Plucked open strings are more resonant than fingered ones, but the latter can be made less severe with the addition of vibrato if the register and tempo allow it.

The speed with which a group of notes can be cleanly executed *pizzicato* is limited, especially when played by a large group. The arranger should consult with a good violinist to determine a maximum workable speed if he plans to write a complex pizzicato passage.

Double, triple, and quadruple stops can be played *pizzicato* by quickly arpeggiating the chords, usually from the lowest string to the highest.

Bartok has made effective use of two other types of pizzicato. One incorporates triple or quadruple stops that are quickly repeated with up and down plucking motions, usually with more than one finger. When I want this effect, I indicate *quasi guitar* or *strummed*. A much more dramatic pizzicato effect is created by plucking the string in a vertical direction, causing it to snap against the fingerboard. This is indicated by the sign  over the note.

*Pizzicato* may be combined with *glissando*—another Bartokian effect. Because of the short duration of pitch in such an effect, I use it almost exclusively on instruments with longer, thicker strings—cellos and basses.

A good recording violinist will adjust his *vibrato* to properly enhance the kind of music he is playing. Generally the vibrato will be a little faster for very expressive or romantic music, and slower for music demanding a cooler approach, as for instance in a background behind a jazz soloist.



The term *con sordino* is used to indicate the use of a mute, *senza sordino* to indicate the removal of the mute. I prefer to indicate simply *muted* or *open*.

A mute absorbs some of the vibrations of the strings and thins out the normal violin tone considerably, producing a charming, intimate sound. The string player must be allowed enough time to install or remove a mute to prevent the little noises which these procedures inevitably entail.

### BOWING TECHNIQUES

There are several ways of manipulating a bow to create a number of different effects. It isn't necessary for the arranger to concern himself with all the nuances of string technique. I always allow my string players to change my bowing indications; they are much more capable and sensitive in this area than I will ever be. I trust their judgment based on years of experience.

I do feel a brief description of the types of bowing most often used, together with an aural demonstration of the sounds which they produce will be beneficial to the student.

This marking  $\downarrow$  over a note indicates a *downbow*;  $\uparrow$  indicates an *upbow*. Unless a specific effect is required, the choice between the two is left to the concertmaster.

In *legato* bowing, the notes are played smoothly with the bow never leaving the strings.

If no slurs are indicated, the string player will alternate up bow and down bow.

EX. 158



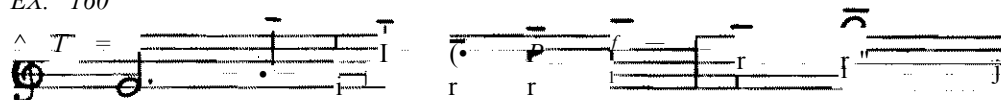
If the arranger wants a group of notes played smoothly with one bow, either up or down, he indicates this by adding slur marks (Ex. 159). This bowing indication is equivalent to a slur over a wind instrument passage. Because of the difference in tone sustaining capacity between winds and strings (a wind instrument is capable of playing a much longer phrase with one breath than a string instrument can with one bow) there will be more slur marks over a string part. Professional string players will automatically alter an indicated bowing if it is difficult or impractical in order to achieve the most musical phrasing. Trust their judgment.

EX. 159



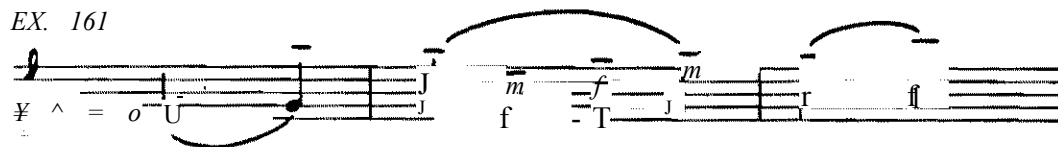
*Délicate* is the term for the technique in which the bow doesn't leave the string, but the notes are detached from one another by alternating up and down bows for dramatic emphasis.

EX. 160



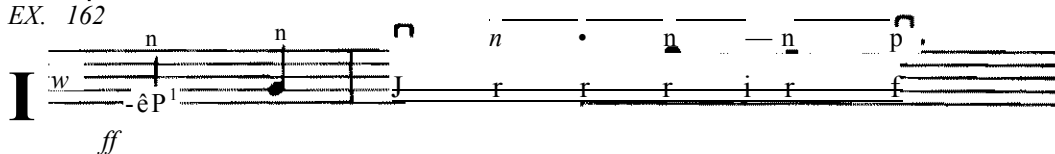
The terms *louré* or *parlando* indicate a bowing technique in which groups of notes are played with one bow, but with a slight pause on each note (Ex. 161).

EX. 161



Consecutive downbows, with the bow lifting off the strings, provide maximum power and emphasis.

EX. 162



*Staccato*, *saltando*, *saltato*, and *spiccato* are terms used to indicate slightly different bowing techniques which all produce crisp, detached notes of short value; it isn't necessary to differentiate between them. To indicate such an effect, write dots next to the note head and leave the method of bowing to the performer.

**EX. 163**



A very light staccato effect in which the bow bounces on the string is called *jeté*, *ricochet*, or simply "bouncing bow." It is used to connect a group of short-value notes and is indicated with a combination of dots and slurs.

**EX. 164**



There are still other, more esoteric bowings used mostly for virtuoso solo playing which need not concern us here.

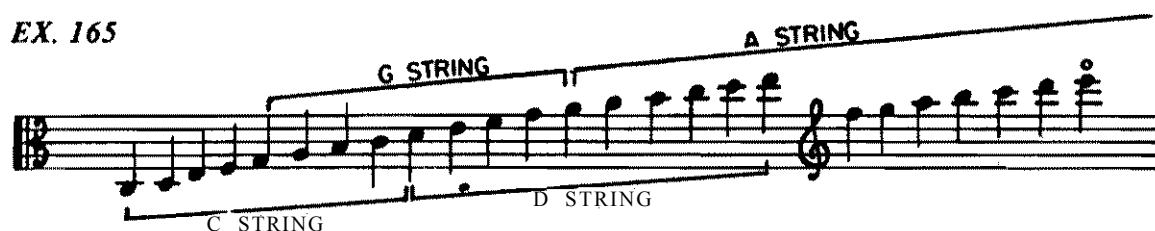
The color effects and bowing techniques discussed will be demonstrated in recorded example number 13 by the brilliant violinist and former concertmaster of the New York Philharmonic, David Nadien.

## VIOLA

The basic tone quality of the viola is warm and subtle, and, except for the high A string, which has a tendency to become nasal, a bit withdrawn. It doesn't have the projection or flexibility of either the violin or cello. Consequently, in a recording string section, it is usually assigned "filler notes" in a voicing—as a sort of bridge between its neighbors. In some string groupings it is omitted entirely. As a solo instrumental color, it can be beautifully expressive, projecting a tone slightly darker than that of the violin.

The viola is scored in the alto clef except for the extreme high register where the treble clef is substituted.

## EX. 165



To avoid confusion, the arranger should avoid changing back and forth between the two clefs; a passage which repeatedly crosses the boundary between the two should be scored in one or the other.

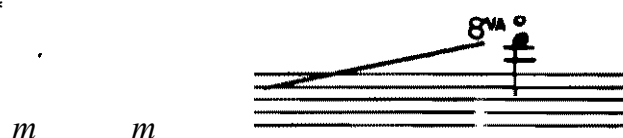
I don't recommend scoring the viola higher than C<sub>4</sub> above the staff (the treble clef); the tone of the instrument becomes a bit strident and intrusive, and except in the hands of an exceptional player, the intonation up there can be imprecise.

The three lower strings are rich-sounding and relatively uniform in texture—therefore best suited for double stops. Whenever possible, I try to incorporate an open string within the double stop. If both notes are fingered, I usually keep the interval between a minor third and a major sixth, though sevenths and octaves are playable.

Triple stops played with short consecutive downbows can be useful for dramatic emphasis, but I avoid quadruple stops, allowing the violist to concentrate on the more resonant lower strings without incurring any intonation problems with the high A string.

The harmonic range of the viola is shown below.

## EX. 1 \*



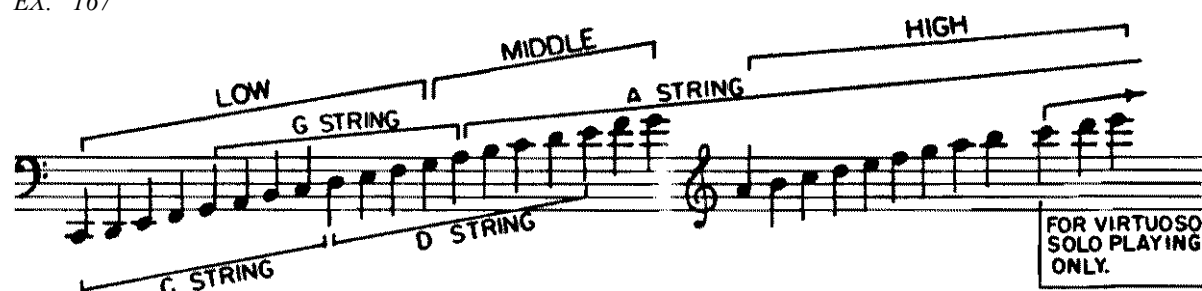
Except in small string ensembles, where there may not be enough violins to fill out a desired chord, I rarely write harmonics for the violas.

## CELLC

The cello is the most powerful member of the string family. It projects a richness and breadth of tone which makes it capable of successfully carrying a string ensemble line all alone, unlike the violins and violas which must be doubled.

The cello is pitched an octave below the viola and scored in the bass clef except for the high register where the treble clef is employed (Ex. 167). In symphonic literature, the tenor clef is sometimes used, but I find it unnecessary.

EX. 167



The low and middle registers are very warm and full bodied; as the cello ascends into the upper register, its tone becomes more intense but not strident.

Double stops, whether short or sustained, are effective on the cello. As with the violin and viola, I advise incorporating an open string wherever possible. When both notes are fingered, the most euphonious intervals are those between a major third and a major sixth, though sevenths and octaves are also playable.

Triple and quadruple stops (these must be arpeggiated or "rolled"), bowed or plucked, are especially effective because of the resonance of the long, thick strings. Three and four note chords should be spread in an open voicing to allow for maximum sonority and ease of execution.

EX. 168



See example 169 for the harmonic range of the cello.

I rarely use cello harmonics except for very small ensembles or if I'm striving for a particularly unusual effect.

EX. 169



The use of pizzicato is especially effective for cellos in the low to upper middle register.

EX170



Occasionally, the cellist is asked to tune his low C string down to B or Bb (never lower) in order to accommodate a special passage.

A section of four or more cellos by themselves produces a unique, full-bodied string sound—a refreshing change from the usual combination of violins, violas, and cellos.

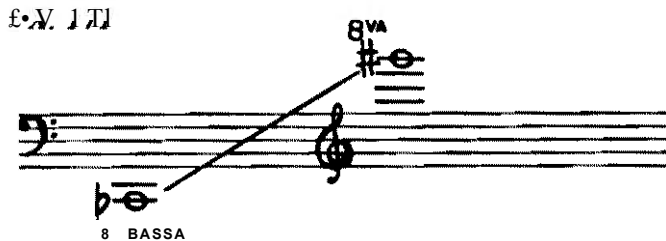
For an illustration of the warmth and beauty a section of cellos can create, please listen to Villa Lobos' beautiful masterpiece, *Bachianas Brasileiras* # 5.

## BASS

In commercial recording, the string bass is used almost exclusively as a component of the rhythm section. It does, at times, join the string section for cadences and other situations where its low register strength (especially when bowed) is needed to anchor the rest of the ensemble. Later in the chapter, we will discuss some examples wherein this function of the bass is illustrated. All other aspects of this extremely important recording instrument will be discussed in Chapter Four.

## HARP

The harp is unique among orchestral instruments, in appearance, sound, and construction. It has forty-seven strings encompassing a range of six octaves and a sixth, tuned to the *C* diatonic scale, and scored in both bass and treble clefs.



It is also equipped with seven pedals which correspond to the seven degrees of the scale. These pedals are used to alter the pitch of the corresponding scale tone *in every octave simultaneously*.

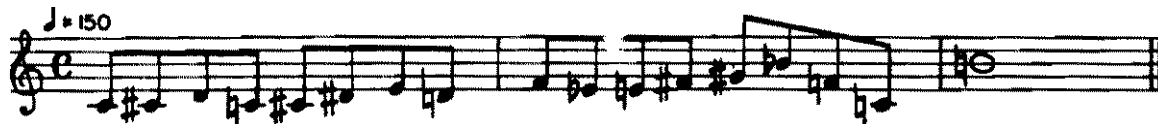
In the highest ("flat") pedal position, in which all the strings are allowed to vibrate freely, the above mentioned *C<sub>b</sub>* scale is produced. In the middle ("natural") position, the depressed pedal raises the pitch of the corresponding scale tone one-half step in every octave; if all seven pedals were in this middle position, a *C* major diatonic scale would result. In the low ("sharp") position, the corresponding scale tone is raised one whole step in every octave; with all seven pedals in this position, the harp is then tuned to the *C<sub>#</sub>* or *D<sub>b</sub>* diatonic scale.

Pedal changes can be made fairly quickly, even while the harpist is playing on strings other than those whose pitch is being altered.

From this brief description of the harp mechanism, several things about harp writing should be apparent:

(1) Because of its basic diatonic construction, excessive chromaticism is impractical and sometimes impossible—especially at a fast tempo.

## EX. 172



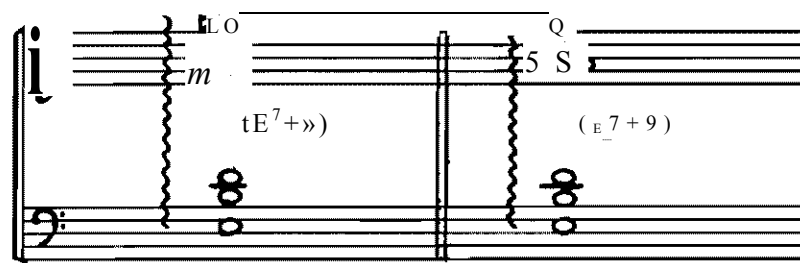
(2) Chords containing two notes which are derived from the same scale step (C<sub>i</sub>/, C<sub>j</sub> , C<sub>i</sub> ) are impossible (Ex. 173). They must be adjusted enharmonically (Ex. 174). Enharmonics can also be employed to facilitate the playing of a passage (Ex. 175), to eliminate certain notes from a glissando (Ex. 176 and 176A), and to produce enharmonic unisons (Ex. 177).

IX. 173

*EX. 174*

LIMPOSSIBLE AS WRITTÉN)

( POSSIBLE )



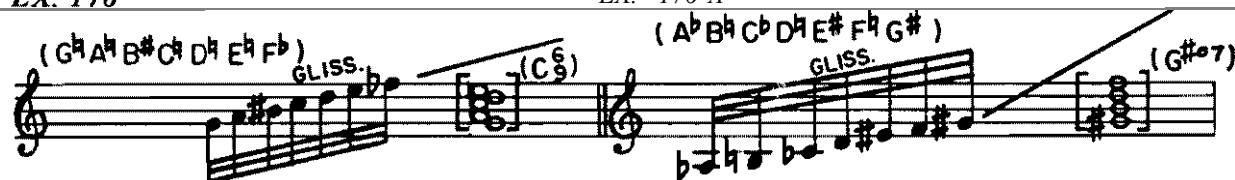
IX. 175

{ REPEATED NOTES )

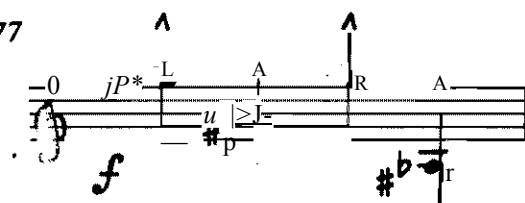


**EX. 176**

*EX. 176 A*



**EX. 177**

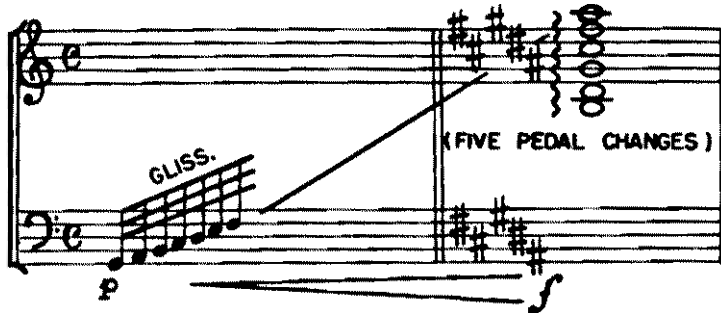




(3) Adequate time must be allowed the harpist to adjust the pedals in order to execute passages in which the key signature changes drastically.

EX. 178

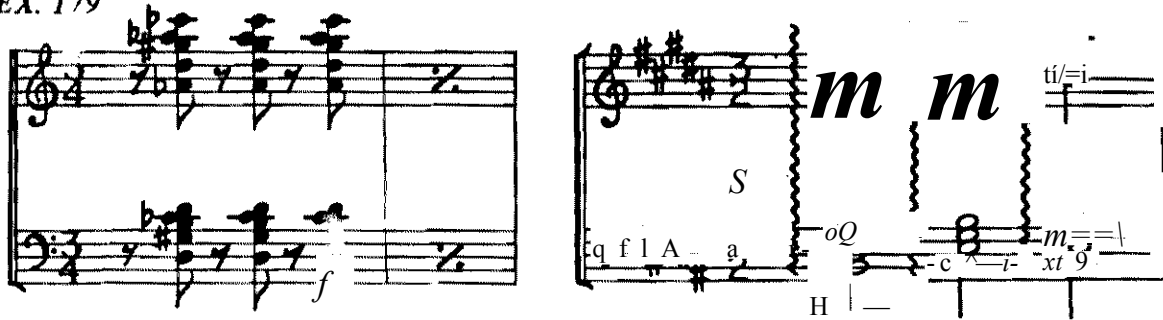
( IMPOSSIBLE )



It is important for the arranger to prepare a harpist for pedal changes before they occur by indicating the letter and accidental for each scale degree to be altered—for instance—A $\flat$ , B $\flat$ , C $\sharp$ , D $\flat$ , E $\flat$ , F $\flat$ , G $\sharp$ .

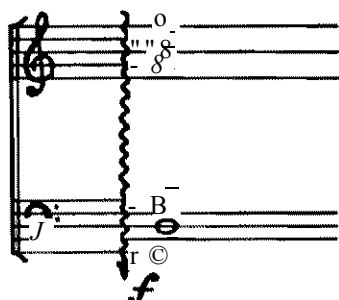
The harpist uses only four fingers on either hand, the little finger is never used. Consequently, chords are restricted to eight notes unless the tempo is slow enough for the harpist to cross over and extend the chord in an arpeggio. Even great composers sometimes forget this facet of harp technique. Example number 179 consists of two short excerpts from the harp in Stravinsky's *Firebird Suite*. As written, they are unplayable.

EX. 179



The harpist will automatically "roll" (arpeggiate from the bottom up) all chords slightly unless directed otherwise. If the arranger wants this effect exaggerated, he writes a wavy line before the chord. If he wishes the chords rolled downward, he indicates this effect with an arrow.

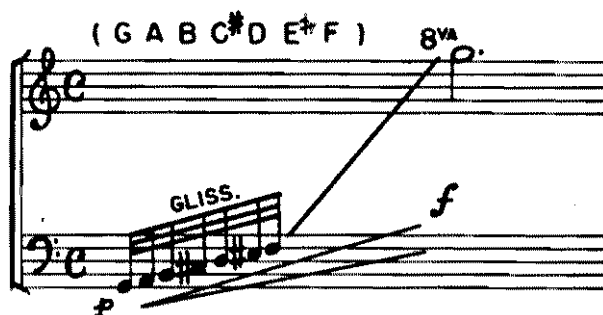
EX. 180



If a short pizzicato effect is desired, the arranger marks a bracket before the chord (as in violin double stops) and also indicates "short" or "plucked" on the part. To exaggerate this effect, the indication "stopped" or "dampened" should be added.

Of course the most characteristic and at the same time most over-used harp effect is the glissando. When indicating a glissando, it isn't necessary to write out all the notes. One octave written out with all necessary accidentals can be extended by a straight line to the point at which the effect is to end.

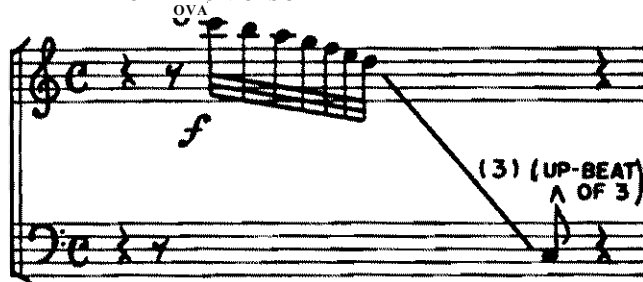
EX. 181



If there is any doubt as to where the gliss begins or ends, I mark in the numbers of the beats which are encompassed within the effect.

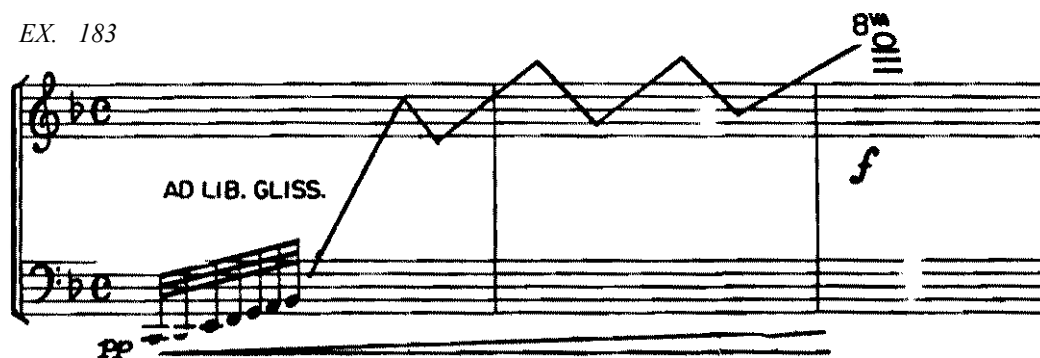
EX. 182

## C DIATONIC SCALE



An unusually long gliss may include one or more "loops."

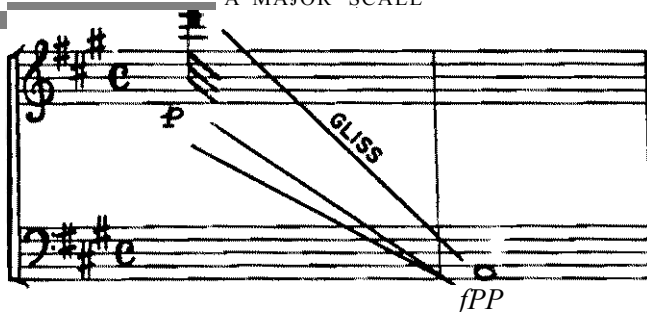
EX. 183



(Glissandos are normally played with one finger of either hand. A particularly soft and lovely gliss effect is achieved by using two fingers a third apart.

EX. 184

## A MAJOR SCALE

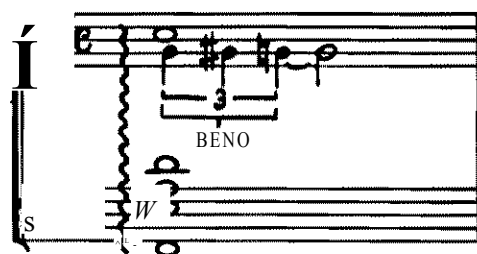


An extremely delicate gliss can be produced by playing the strings with the palms of the hands instead of the fingers.

Harder sounding, almost metallic effects are achieved by playing near the soundboard (*près de la table*) or with the fingernails.

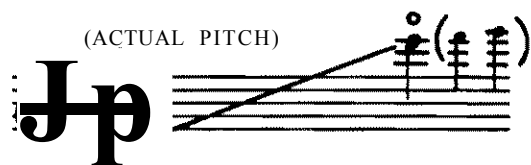
A funky bent-note effect, very useful in a jazz or rock context, can be achieved by plucking a string and then raising or lowering the corresponding pedal while the tone is sustaining, thereby altering its pitch. This effect is especially attractive when this pedal technique is applied to one or more notes within a chord.

EX. 185



Octave harmonics (sounding an octave higher than the sound of the open string) produce a lovely but extremely light and delicate sound. The confusion concerning the notation of violin harmonics also exists in harp literature. Some composers indicate the basic note with a circle over it and expect the harmonic an octave above—others indicate the actual desired pitch with a circle. I prefer the latter method. To avoid confusion, I indicate the words "actual pitch" on the part. The most effective range for harp harmonics is shown below.

EX. 186



For this sound to be effective it must be almost entirely in the clear—any competing sound playing louder than *pp* can cancel it out. For this reason, I have found it to be generally ineffective for recordings.

The harp can be doubled effectively with vibes (especially when the arranger wants to "de-romanticize" his score a little), bells, celeste, or a solo flute. Here is a short excerpt from Debussy's *Nuages* which illustrates this sound.

## EX. 187

\* HARMONICS SOUND 8<sup>va</sup> - NORMAL NOTATION  
PROCEDURE IN CLASSICAL LITERATURE.

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When scored properly, a harp can be extremely useful to the recording arranger, providing a beautifully resonant sound for accents, to fill up bare spots, and especially to lend support to string entrances and runs. As stated earlier, there is a great temptation to overindulge in the sweeping glissando effect; unless used with discretion, it can make an arrangement sound cloying and old-fashioned.

Recorded example number 14 (the opening section from Jackie and Roy's recording of "Day By Day," CTI-6019) is in two parts. The first time through, the passage will be played as recorded with the harp, the second time, without the harp. The contrast between the two versions will, I think, convince you of the usefulness and effectiveness of the harp in a recorded arrangement.

## VOICING THE STRINGS

As we have seen in Chapter Two, the tonal uniformity and overall sonority of a group of wind instruments (wherein the basic voicing procedure usually involves a separate note for each horn) will remain fairly stable despite the addition or omission of a number of players; the intensity and complexity of the chordal structure can be affected, but usually not the overall ensemble concept. An arranger, through judicious distribution of tones, can, for instance, achieve a satisfying big-band sound from twelve horns as well as from twenty; one or two horns more or less will not substantially affect the arranger's *basic orchestrational altitude* in scoring that ensemble.

A brass section can consist of four, five, six, seven, or more players—you can add or subtract horns arbitrarily and still maintain *uniformity of texture*.

The voicing of strings, however, is an entirely different matter. A string ensemble cannot be successfully expanded arithmetically (one by one) as winds can because string voicings, except in small chamber groups, usually require more than one player on a line. The proper balance of these lines within a voicing gives a string ensemble its beauty and character.

The arranger must know the number of string players available to him before he can begin to make crucial decisions regarding sonority, melodic treatment, and general style. Different string groupings produce very different kinds of textures.

Through years of study, observation, inquiry, and mostly trial and error, I have found the following string groupings to be the most useful for recording purposes.

*Four strings*—*tv/o* violins, one viola, one cello: the standard string quartet.

The essence of good quartet writing lies in the creation of a four-way conversation between the players—each line separate but equal. This is accomplished through the extensive use of contrapuntal motion. In a chamber group, constantly shifting linear movement creates a lean, moiré string sound—quite unlike the soaring flights of larger ensembles which depend on unison-rich chordal voicings for their glowing sonorities and dynamic sweep.

A good deal of sensitivity is demanded from quartet players. Each one must be continually able to adjust his sound according to subtleties demanded by the ebb and flow which characterizes good quartet writing and playing.

## EX. 188

SOLO

♩ = 75

VLN. I

VLN. 2

VLA.

VCL.

*p*

*p*

*p*

*mp*

*mp*

*mp*

*mp*

*mf*

PIZZ.

ARCO

VLN. I

VLN. 2

VLA.

VCL.

*p*

*mp*

*f*

*f*

*f*

*mp*

*f*

Notice how the center of attention flows naturally from one player to another. The constant motion is possible because of the communication possible between players in a small group. The same example scored for a section of sixteen or twenty strings would sound labored and overbearing.

String quartet writing is a challenge; it isn't learned quickly. It is the most difficult and demanding string idiom to write for properly and effectively.

The quartets of Haydn, Beethoven, and Bartok should be studied and analyzed, and I especially urge the aspiring recording arranger to digest completely the quartets of Ravel and Debussy. These two "sister" quartets constitute a course in string quartet writing all by themselves.

The *trio*—one violin, one viola, one cello and the *quintet*—two violins, two violas, one cello (or three violins, one viola, one cello) are variations of the basic quartet and are treated in essentially the same way.

The chamber groups are used to create an intimate, highly personal mood—we are not concerned here with trying to project a big, lush sound. All other recording string ensembles, however, *are scored and treated in a manner which will enable them to project as full and glowing a sound as possible.*

*Nine strings*—seven violins, two cellos.

This is a utilitarian ensemble, used chiefly for assignments in which the budget doesn't allow for more strings. The arranger really has to use his ingenuity to achieve as big a sound as possible with a group of such limited size. Because of its relative weakness, the viola, is eliminated from this ensemble.

*Twelve strings*—eight violins, two violas, two cellos.

An ensemble of twelve players, because it represents a workable compromise between aural and economic considerations (usually, but not always necessary) is probably used for recordings more often than any other string grouping.

Very often, an extra violin is added to this grouping, making a total of thirteen players. The one extra violin gives the arranger three advantages: (1) it lends a little extra strength and body to a unison violin line; (2) it puts an extra player on the lead line in a two-way violin division (5-4, instead of 4-4), giving a bit more emphasis to the melody; and (3) it enables the arranger to divide the violins into a three-way division (3-3-3) if necessary. I do not advise having less than three violins on a line.



This ensemble can be extended further by the addition of a third viola, making a total of fourteen players. The extra viola insures adequate sonority on the unison viola line, especially important in arrangements which feature extensive inner voice movement.

## EX. 189

9 VLNS. *m w t w* *1 f f f f f f f f f f*

3 VLA. *m u* *UNIS.* *mf*

2 VCL. *E A G F E* *B<sup>b</sup> m<sup>7</sup> E<sup>t>7</sup>*

RHYTHM & HARP *Ab E\** *B<sup>b</sup> m<sup>7</sup> E<sup>t>7</sup>*

VLNS. *t r r n U a I i* *mp* *fro-*

VLA. *mp*

VCL. *UNIS.* *mf* *HARP* *DIV.* *mp*

RHY. *Ab Fm<sup>7</sup> B<sup>b</sup> m<sup>7</sup> SUS 4 Ab<sup>9</sup> Eb<sup>7-9</sup> A<sup>a9</sup> ft" m<sup>7</sup> P<sup>b7</sup>* *mp*

\* H P

ETC.

Another variation of the basic grouping of twelve strings consists of nine violins and three cellos. (See example number 204.)

*Sixteen strings*—twelve violins, four cellos.

This grouping is my favorite for most recording purposes. It gives the arranger not only a strong and sonorous total ensemble, capable of achieving any effect with satisfying results, but also two separate entities, each of which is strong and flexible enough to function independently—very much like the left and right hands of a pianist.

Sometimes, for additional strength on the lead line, an extra violin is added.

*Twenty strings*—twelve violins, four violas, four cellos. This, in my opinion, represents the maximum string force necessary or desirable for recording purposes. In fact, I have heard records wherein a string ensemble of twenty players, intended to be used as a background for a vocalist or instrumental solo, completely dominated the record. Sometimes less can be more, and vice versa.

For unusually adventurous instrumental writing, a body of twenty strings is fine—capable of realizing just about anything an arranger can dream up. Any ensemble much larger than this tends to sound pompous on records, and should be restricted to music which absolutely demands a sound approaching symphonic proportions.

I now present several basic principles of string writing which apply to the four groupings described above. The importance of these principles increases in inverse ratio to the number of string players available. In other words, the smaller the ensemble, the more careful you must be in the application of these principles if you are to achieve the best possible results.

1. To achieve maximum sonority, limit the division of your string ensemble to as few lines as possible. (The basic principle of *economy*.)

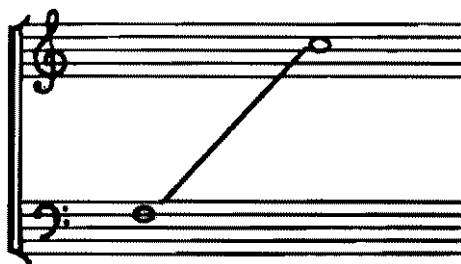
2. As a general rule, the lead violin line should be carried by more players than any other line in a concerted string chord. The ratio of players on the lead line to those on a subordinate line varies according to the taste of each individual arranger; some prefer an equal or nearly equal distribution of players—for instance, a section of twelve violins would be divided 6-6 in a two-way divisi, and 4-4-4 in a three-way divisi. Other writers, in order to emphasize the melody, prefer more weight on the lead—even a 2 to 1 ratio; for instance, 8-4 in a two-way divisi (which I feel is unbalanced) and 6-3-3 in a three-way divisi. My own preference lies somewhere between the two extremes—usually 5-4-3 in a three-way divisi. Because the lead line is always played by the strongest players, it has a natural tendency to be a bit more prominent than subordinate lines even in an equal division. To avoid confusion, the arranger should indicate clearly, both in written and verbal instructions to the concertmaster, how he'd like the strings divided.

3. The only string instrument capable of sustaining an ensemble line alone is the cello, *never* less than two violas on a part—as a general rule, not less than three violins on any *sustained* line, although an occasional trill or tremolo line played by two violins is permissible.

4. As the pitch of a concerted chord rises, the size (or lack of size) of a string ensemble tends to become more apparent. When scoring for a small body of strings, the arranger must compensate for this effect by limiting the division of the ensemble (putting more players on each part) more severely as the register ascends. For instance, a small number of available violins may necessitate the scoring of a high register melodic line in unison or thirds instead of in a three-way divisi.

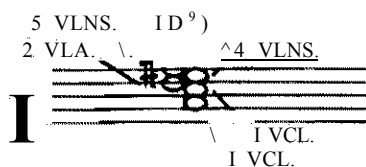
5. As the pitch of a concerted string chord rises, adjacent seconds (major or minor) tend to become more strident. To achieve maximum sonority, the use of seconds should generally be limited to the lower-middle register, approximately (Ex. 190).

EX. 190

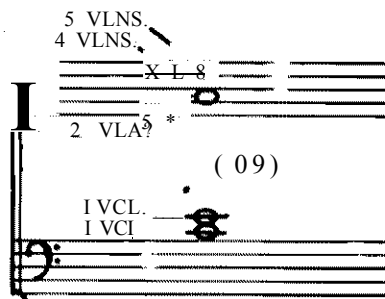


For instance, this chord (Ex. 191) would sound richer and more satisfying if voiced this way (Ex. 192). Of course, exceptions to this general rule can be made for special effects and sounds—one in particular is the famous David Rose string sound.

EX. 191



EX. 192



2. The string bass is also capable of sustaining a line, but only in a recording studio—never in a live performance.

This sound, (Ex. 193) is a very personal and highly stylized one.

EX. 193

The musical score for Example 193 is a short excerpt for a string ensemble. It is written for three staves: Violins (3 parts), Violas (2 parts), and Cellos/Double Basses (2 parts). The key signature has one flat (B-flat). The music features a tight block voicing with many accidentals (sharps and flats) and a complex, highly stylized sound. The notation includes various accidentals and a dense arrangement of notes across the staves.

I find it a little too slick and polished for my taste. More objectively, however, it can be effective for lush melodies, but not much else. The tight block voicing makes it too intense for most recording purposes.

6. Whenever a particularly strong ensemble sound is necessary, especially when the strings are playing a concerted melodic passage, the lead violin line should be reinforced an octave lower. (See example number 203.)

7. As is the case in all recording ensembles, the least important note of a string voicing is the chordal root. This note is usually played in the string bass. Many arrangers make a habit of automatically doubling the bass notes with the lowest cello. Because of the resonance of a recorded string bass, this is usually unnecessary and sometimes can be detrimental to the overall sound, "anchoring" or "grounding" it. It can also "cloud" the clarity of the bass line. By putting some distance between the lowest cello and the string bass register, you allow the strings to "float" over the foundation laid down by the rhythm section. There will be passages where you will want an especially full, bottom-rich string sound (example number 204), but these will be fresher sounding and more effective if used sparingly.

The following examples will demonstrate the application of these principles to the voicing of each of the basic recording string groupings.

Example number 194 is a condensed concert sketch of a complete arrangement of "The Wiffenpoof Song" scored for solo trumpet, nine strings, and rhythm which I did for Jack Sheldon a few years ago.

**EX. 194**

EX. 194

RUBATO TEMPO  $\text{♩} = 58$

7 VLNS. 3 BARS UNIS. - SUL TASTO (A) DIV. (4) (3) I ONLY

PIANO SOLO INTRO PP DIV. - SUL TASTO

2 VCL. PP

HP. SOFT GLISS (UP-BEAT) OF 2 P (NO CRESC.) SLOW VIB

VIBES

3 GIRL SINGERS

TPT. SOLO (CONCERT KEY) AD LIB.  $\text{Em}^7 \text{E}^b9$

RHYTHM  $\text{G}^9 \text{sus} 4$   $\text{Cma}^9$   $\text{Am}^9$   $\text{Dm}^9$   $\text{G}^9 \text{G}^9$   $\text{Dm}^9$   $\text{D}^b9$   $\text{Em}^7 \text{E}^b9$

Handwritten musical score for "The Sound of Silence" by Simon & Garfunkel. The score includes staves for VLNS. (Violins), VCL. (Viola), HP. (Harp), VBE. (Vibraphone), SINGERS, TPT. (Trumpet), and RHY. (Rhythm). The harp part features a sequence of notes B, C, D, E, B, and a crescendo marking. The rhythm part includes a series of chords: Dm9 Db13, Dm9 Db13, Cmaj9, Am9, C#7, Dm9, G#9, G9, Ab13, G7-9 (with E), and C6. The score is marked with dynamics like mp and p.

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\* THIS KTTTATION-M (OR IF THREE PLAYERS-&3) BEFORE A NOTE.  
IS AR HER WAY TO iWblCATE A UNISON.

The musical score is arranged in a system with six staves. The parts are as follows:

- VLNS. (Violins):** The top staff, featuring a melodic line with a 'UNIS.' (unison) marking at the beginning, a 'DIV.' (divisi) marking, and a 'NATURALE (UNIS.)' marking towards the end. Dynamics include 'mp' and 'POCO CRESC.'.
- VCL. (Viola):** The second staff, mirroring the violin part with similar markings and dynamics.
- HP. (Harp):** The third staff, showing arpeggiated chords and a 'POCO' (poco) marking.
- VBE. (Violoncello):** The fourth staff, providing a lower melodic line.
- SINGERS:** The fifth staff, which is currently empty.
- TPT. (Trumpet):** The sixth staff, featuring a melodic line with harmonic support.
- RHY. (Rhythm):** The bottom staff, showing a complex rhythmic pattern with various chords and accidentals.

The score includes various musical notations such as notes, rests, accidentals, and dynamic markings. The overall style is that of a classical or romantic-era orchestral score.

1

EX. 194 cont'd. (7)

Musical score for Example 194, page 7. The score is for a full orchestra and includes parts for Violins (VLNS.), Viola (VCL.), Horns (HP.), Vibraphone (VBE.), Singers (SINGERS.), Trumpets (TPT.), and Rhythm (RHY.). The tempo is marked "RUBATO" and "SUL TASTO UNISON". The key signature has one flat (B-flat). The score shows various musical notations including notes, rests, and dynamic markings like "p" (piano) and "f" (forte). There are also handwritten annotations such as "AD LIB.", "G7-9 (W/E)", "Fm9", "EbMaj9", "Dbm9", "Cmaj9", and "PIANO FILLS AD LIB.".

The seven violins should never be divided into more than two *sustained* lines. The cellos, except when they are playing an important unison counter line (as in bars 17, 18, and 19, and again in bár 25) are also divided, each one sustaining his own line. Occasionally, the bottom cello will play a double stop for a bit of added chordal richness.

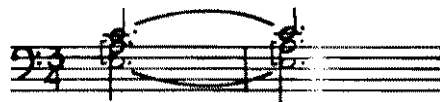
Leading into letter C, the violins and cellos become widely separated—the "left hand, right hand" effect we mentioned earlier. Whenever this effect occurs (and it occurs often with string ensembles of every size—see example number 201), the ensemble is separated into two independently functioning groups. The violins (right hand) ascending into the upper register to outline a unison counter melody, while the cellos (left hand) sustain a chordal pad.

135



In bars 33 and 34, the cellos supply the third and root of the chord while the high violins have the fifth—a complete A minor triad. The addition of an E in the bottom cello at this point is unnecessary.

EX. 195



It would have "grounded" the voicing, making it obvious and a bit coarse instead of soft and floating. In bar 35, the cellos are tied over to a C and an A which have become the seventh and fifth of the D minor 7th chord; the vocal line now supplies the *chordal third* for two bars.

In bars 39 and 40, I had the bottom cello play a double stop, adding the chordal fifth. This was done to counter balance the weight of the 9th, Fp, which is temporarily doubled by the voice and high violins. As soon as this imbalance is resolved in bar 41, the double stop is no longer necessary and is eliminated. (Again, the basic principle of economy.)

Bar 43 is a resting place in the score—it needs a little added richness in the cellos to help bring the line to a stop, so I added a double stop, again in the *second* cello. I don't like to give double stops to the lead cello unless absolutely necessary, for the same reason I usually don't give them to the lead violins—it could adversely affect the smoothness of an important melodic line. When a particularly rich sounding chord is necessary, both cellos can play double stops—for instance, in bar 43, the cellos could have been written this way.

EX. 196



In this score, however, especially since the violins sound the *chordal third*, the added weight is unnecessary.

As we mentioned, throughout example number 194, the violins are either in unison (especially in the high register) or divided into two lines, never three. If we had at least nine violins, the phrase in bars 20 and 21 could have been scored in a three-way divisi.

EX. 197



Throughout example number 194, the bottom cello plays only eight chordal roots. These are included for *temporary richness and depth* (bars 10 and 12) or to *solidify the overall identity* of a string chord—having it sound four chord tones instead of three (bars 23, 24, 26, 27, and 28) but *not* to reinforce the bass.

Notice the last four bars. The arco bass, supplying the chordal roots all by himself, is now part of the string ensemble.

The next example, a short excerpt from a recent score done for a Sonny Stitt album, illustrates the proper way to voice full ensemble chords in the low, middle, and high registers for nine strings.

EX. 198

*POCO A POCO CRESC. ....*

7 VLNS. *DIU* **5lp** *pp* **0** *P* *f* *f*

2 VCL. *«V.»* *pp* *0* *\** *f*

RHY. *p* Cm C P Cm Dm

VLNS. *UNIS. 8va ETC.*

VCL. *-O.*

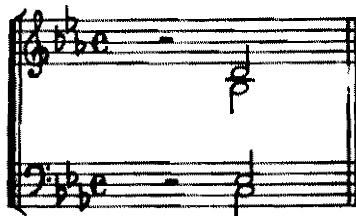
RHY. **U ?r^** Cm O M Cm

Again, we limit the division of the string ensemble to as few lines as possible in order to achieve maximum sonority.

The gradual rise of the ensemble up to the high climactic cadence in bars 11 through 13, is helped considerably by the constant linear movement—at least one voice is always moving upward. Especially noteworthy is the extensive use of *chords built on intervals of the fourth*; this chordal structure projects a good deal of resonance for string ensembles of any size, but is particularly useful for small ensembles of this kind where our goal is to make the ensemble appear to be larger than it really is

The lead violins begin with an open string double stop in order to avoid an awkward-sounding chord.

EX. 199



In bars 11, 12, and 13, I had the second cello play double stops in order to maintain the harmonic momentum of the long succession of four-note chords established in the previous bars. If I had omitted the B>, we would have been left with a plain triad—it would have been a letdown after the long preparation. Had I omitted the Eb in the cellos, the gap of a seventh between the cellos (A1> and Bb) would have diluted the sonority of the overall string ensemble sound.

A section of twelve to fourteen strings is considerably more sonorous and flexible than a group of nine, giving the arranger an ensemble capable of successfully sustaining five, and *if necessary*, six separate lines. I emphasize the words, *if necessary*. Having additional players at one's disposal should not *automatically* suggest the necessity for dividing the total string ensemble into many separate lines.

The first rule of string writing applies to all string groupings regardless of size. The more string players on a line, the more sonorous the line will be. The most important advantage of a larger string ensemble is an increase in overall sonority; because of added tonal weight, the strings can project a fuller, more substantial glow than was possible with smaller groups.

The following example illustrates a typical sustained background passage voiced for eight or nine violins, two violas, and two cellos.<sup>3</sup>

3. Extracted from an arrangement of "Lonely Town," recorded by Freddie Hubbard.

## EX. 200

## BACKGROUND TO AD LIB. TRUMPET SOLO

9 VLNS. <sup>^</sup> DIV. 2 *p* POCO A POCO CRESC.

2 VLA. *UNIS.* *p* POCO A POCO CRESC.

2 VCL. <sup>^</sup> DIV. 2 *p* POCO A POCO CRESC.

RHY. Cm<sup>9</sup> F<sup>9</sup> Cm<sup>9</sup> F<sup>9</sup> Cm<sup>9</sup> Bm<sup>9</sup> E<sup>9</sup> Am<sup>7</sup> ETC.

VLNS. *m* *f* POCO A POCO D/M *UNIS. i* *DIV.* *igÉ*

VLA. *f* POCO A POCO DIU.

VCL. *m* *f* POCO > 4 POCO DIU

RHY. gr.<sup>4</sup> E<sup>9</sup> A<sup>+</sup> 9\*oo 6 Gm<sup>7</sup> C<sup>9</sup> Dt\* Dm? C Brr<sup>7-5</sup> E<sup>7-9</sup> Am Afn? G F<sup>2-3-4</sup> F<sup>9</sup> B W

VLNS. *p* \*

VLA. *p*

VCL. *UNIS. \** *p*

RHY. Eb<sup>13</sup> D<sup>7+9</sup> D<sup>9</sup> Ma<sup>7</sup> G<sup>b</sup> Ma<sup>3</sup> C<sup>7</sup> F<sup>13</sup> Fm<sup>9</sup> (no 7TH) Fm<sup>9</sup> (w/bb) Fm<sup>9</sup> Fm<sup>9</sup> (w/D<sup>b</sup>) Fm<sup>9</sup> (mp 7TH)

^ THE LONG SLURS AND/OR TIES COULD NEVER BE PLAYED IN ONE BOW. HOWEVER, IF THE PHRASING IS INDICATED, THE STRING PLAYERS WILL REVERSE THE BOW DIRECTION UNOBTUSIVELY (ALMOST IMPERCEPTIBLY) IN ORDER TO ACHIEVE A LONG SMOOTH LINE.

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Here we are trying to achieve a soft, luminous sound which floats over the rhythm section pulse without interfering with its motion. The strings are divided into five lines, voiced in open or semi-open position for good clear sonority. The extreme low register is avoided, further ensuring maximum clarity—the chordal roots are used *only when they fit naturally into the flow of the voicing structure*.

Notice the melodic motion in the bottom cello in bars three and four, and especially the crossover between the cellos in bar seven. This was done to avoid an awkward line (Eb, D, E1j) in the top cello. The two cellos switch back to their normal positions as soon as the melodic motion allows it in bar nine.

The principle of *internal resonance* which was discussed in Chapter Two is also at work here. The string section is voiced as a single unit, but contained within the overall structure are two separate, but mutually dependent entities: the violins, and the combination of the violas and cellos. As you can see, the violins are voiced in thirds most of the time—a very consonant sound. The violas and cellos are voiced in three-note chords, usually triads, incomplete sevenths, or fourth chords, all very resonant chordal structures. The integrity of each of the two groups contributes to the sonority of the overall string ensemble sound—especially important with large groups of thirteen or more players. In the recording studio, small string ensembles (nine players or less) are usually "miked" as a unit, and recorded on a single track. To achieve an illusion of added fullness, larger string groups are usually recorded on two separate tracks (violins on one, violas and/or cellos on another) and later separated into left and right stereo channels. If each of the two units projects a satisfying sound, independent of the other, an homogenous ensemble blend will be achieved despite the electronic separation.

The independence of each of the two units becomes even more important when the ensemble is separated into the "right-hand, left-hand" mode mentioned earlier, as in the next example, the introduction to "Yesterday's Dreams" as recorded by Freddie Hubbard.

4. Very often, to enhance the ensemble sound, the strings are doubled—the basic string parts exactly duplicated on a separate track. For an explanation of this process, see Chapter Eight.

EX. 201

Musical score for EX. 201, featuring strings and piano accompaniment.

**9 VLNS.** (Violins) and **2 VLA.** (Violas) parts are marked *SUL TASTO* and *UNIS.* (unison). Dynamics include *pp* and *p*.

**2 VCL.** (Violoncellos) part is marked *DIV 2* (divided by 2). Dynamics include *pp* and *p*.

**HR & KEYBD.** (Harp and Keyboard) part includes *ELEC. PNO.* (Electric Piano) and *HARP SOLO*. Dynamics include *p* and *mp*.

**BS.** (Bass) part includes chordal accompaniment with chords: *F#m7(7M)*, *G#+*, *A#m7-5*, *F#m7-5*, and *F#m7*. Dynamics include *p*.

Musical score for EX. 201, featuring strings and piano accompaniment.

**VLNS.** (Violins) and **VLA.** (Violas) parts include dynamics *mf* and *mp*. The **VCL.** (Violoncellos) part includes a *(1-TACET)* instruction.

**HR & KEYBD.** (Harp and Keyboard) part includes *F#* and *Bb Ab* chords. Dynamics include *mp* and *mf*. A *mp (SOFT GLISS.)* instruction is present.

**BS.** (Bass) part includes chordal accompaniment with chords: *mp Em7*, *Dm9*, *E7sus*, *E7*, *E7+5*, and *A#m7(7M)*. Dynamics include *mp* and *mf*.

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Later, in the same arrangement, we have another passage which illustrates the effectiveness of dividing the string ensemble into two widely separated units.

## EX. 202

The musical score for EX. 202 is divided into two systems. The first system features 9 Violins (VLNS.), 2 Violas (VLA.), 2 Cellos (VCL.), and a Rhythm section (RHY.). The Violins and Violas are marked *SUL TASTO* and *UNIS.* (unison). The Cellos are marked *SUL TASTO* and *UNIS.* The Rhythm section provides a steady pulse. The second system features Violins (VLNS.), Viola (VLA.), Cello (VCL.), Horns (HORNS), Bassoon, and Rhythm (RHY.). The Violins and Viola are marked *NATURALE*. The Cello is marked *NATURALE*. The Horns and Bassoon are marked *NATURALE*. The Rhythm section provides a steady pulse. The score includes various musical notations such as dynamics (*p*, *f*), articulation (*SUL TASTO*, *DIV.*), and chord symbols (*E7*, *Am*, *E7/G#*, *Am9/G#*, *Am6/F#*, *F#m7*, *G7/F*).

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This short passage gains momentum with each bar. It begins with the violas and cellos providing a unison counter line to the high violins. Gradually the two lines approach each other. In bar five, the strings begin to divide, adding some harmony to the continuing melodic motion.

Bars six through eleven provide the *climax* of the score, demanding as big a sound as possible from the strings. The overall ensemble sound is considerably strengthened by reinforcing the lead line an octave lower, first with the top cello, and then with the unison violas. (String writing rule number 6.) Extra tonal body is also achieved by changing from *sul tasto* to a natural sound in bar eight.

Here is another example of octave doubling in a fairly large string section. It is taken from my arrangement of the old Charlie Barnet classic "Skyliner," which is included in my CTI album "The Rape of El Morro" (CTI-6061).

## EX. 203

The musical score consists of three systems of staves, each containing three parts: Violins (VLNS.), Viola (VLA.), and Violoncello (VCL.).

- System 1:**
  - 9 VLNS.:** Marked *mf* and *Div. 22*. The staff shows a melodic line with a slur over the first four measures, indicating octave doubling.
  - 2 VLA.:** Marked *mf*. The staff shows a lower melodic line with a slur over the first four measures.
  - 2 VCL.:** Marked *mf* and *Div.*. The staff shows a lower melodic line with a slur over the first four measures.
- System 2:**
  - VLNS.:** Continues the melodic line with a slur over the first four measures.
  - VLA.:** Continues the lower melodic line with a slur over the first four measures.
  - VCL.:** Continues the lower melodic line with a slur over the first four measures.
- System 3:**
  - VLNS.:** Continues the melodic line with a slur over the first four measures.
  - VLA.:** Continues the lower melodic line with a slur over the first four measures.
  - VCL.:** Continues the lower melodic line with a slur over the first four measures.

The score illustrates octave doubling across three systems of staves, with each system containing three parts: Violins (VLNS.), Viola (VLA.), and Violoncello (VCL.). The notation includes slurs and dynamic markings (*mf*) to indicate the intended performance.

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The lead violin melody is doubled an octave lower by the violas. Notice the cross voicing between the violas and cellos. In order to maintain the same string ensemble color throughout the passage, I did not shift the melody back and forth between the violas and cellos. This voicing illustrates the same principle we encountered in our discussion of octave doubling in the brass—Chapter two, example 47.

The next example is a little different. It is a condensed score of an arrangement of "Amazing Grace" which I did for Hubert Laws. It is scored for flute, harp, nine violins, three cellos, and acoustic bass-there is no rhythm section. The intention of this score was to sustain a pure religious feeling throughout.

EX. 204      "Amazing Grace"—Recorded by Hubert Laws

9 VLNS. TEMPO

3 VCL.

HR. SOLO (ARPEGGIOS) (BROKEN CHORDS)

HUBERT BASS FLUTE (SOUNDS AN OCTAVE LOWER)

BS.

VLNS. RALL. (B) DIV. a2 (5)

VCL. DIV. a3

HR. (CONTINUE BROKEN CHORDS)

HUBERT ALTO FLUTE (TRANSPPOSED TO CONCERT KEY)

BS. (SOUNDS AN OCTAVE LOWER)

145

## EX. 204 cont'd. (3)

VLNS. *POCO A*

VCL. *DIV. 23*

HP. *A A<sup>+</sup> D A D C<sup>#</sup> F<sup>#</sup>m<sup>7</sup> Bm<sup>7</sup> E<sup>9</sup> D A D A*

HUBERT *AD LIB. COL. HARP CHORDS*

BS. *mp* *PIZZ.* *mp*

VLNS. *POCO CRESC.* *DIV. 23*

VCL. *1 3 2*

HP. *D A E<sup>9</sup>SUS<sup>4</sup> A A E<sup>9</sup>SUS<sup>4</sup> A A A<sup>+</sup>m<sup>7</sup> 2 A A D A<sup>+</sup>m<sup>7</sup> D A*

HUBERT *A D*

BS. *Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z Z*

EX. 204 cont'd. (4)

Div. a2

VLNS.

VCL.

HP.

HUBERT

BS.

FL. CADENZA

TEMPO

(1-TACET)

(2-3)

(BROKEN CHORDS)

CADENZA

(SOUNDS & BASSA)

MELODY W/OVERDUB FILLS

ARCO

Handwritten musical score for "The Rose Tree" featuring five parts: VLNS. (Violins), VCL. (Viola), HP. (Harp), HUBERT (Horn), and BS. (Bass). The score is written in G major (one sharp) and 4/4 time. The tempo is marked "(LOCO)".

The VLNS. part includes dynamic markings such as *ppp*, *poco*, and *p*, and articulation like *div. 22* and *div. 23*. The VCL. part includes dynamic markings like *p* and *poco*, and articulation like *div. 22* and *div. 23*. The HP. part includes chordal notation such as  $F^{\#}m$ ,  $B7$ ,  $Bm7$ ,  $E$ ,  $A$ ,  $Am7$ ,  $A9$ , and  $A7$ . The HUBERT part includes dynamic markings like *p* and *poco*. The BS. part includes dynamic markings like *p* and *poco*.

## EX. 204 cont'd. (5)

The musical score is for a contemporary ensemble and includes the following parts and markings:

- VLNS. (Violins):** The top staff, marked with a circled 'G' and 'FADE (ONLY)' above it. It includes a '(2-TACET)' marking.
- VCL. (Violoncello):** The second staff, marked with '(1-TACET)' and '(2-3)'.
- HP. (Harp):** The third staff, featuring a series of chords: A, F#m7, E, Dm7, C#m7, Bm7, E9sus4, A, A, A#m7, D, and A.
- HUBERT (Bass Flute):** The fourth staff, marked 'BASS FLUTE SOLO' and 'ETC...CONTINUE MELODY UNTIL FADE'.
- BS. (Bass):** The bottom staff, marked with 'pp' and 'fff' dynamics.

The strings are voiced very simply, mostly in triads, in a manner designed to produce a rich, organ-lü e sound; in fact, this score could be almost literally transcribed for organ.

The string bass imitates the low pedal register of an organ, voiced in conjunction with the cellos, sometimes in unison or octaves with the bottom cello, sometimes sounding the root of the chord alone.

Notice particularly the use of double stops in the cellos throughout letter [D] which culminates in a big resonant G chord spanning five octaves.

In t! e recording, the sound of the ensemble was enhanced by having the stngs overdub their parts (duplicate the initial string tracks a second time) and by adding electronic echo. Although these mechanical proce! es (which will be discussed in Chapter Eight) affect the recorded sourn of a group of instruments, they do not affect the basic voicing proceuures I have recommended.

When scoring for sixteen strings, the voicing structure is usually identical to that used for twelve or thirteen strings; the distribution of players in a given chord, however, is somewhat different.

I'll use example number 200 again as the basis for our next example, showing how I would voice the same passage for sixteen strings.

EX. 205

D.V.M. *POCO A POCO CRESC*

12 VLNS.

4 VCL

RHY.

(ETC)

POCO A

VLNS

VCL

RHY.

POCO DIM

VLNS

VCL

RHY.

VLNS.

VCL

RHY.

UNIS.

Fm<sup>9</sup> b<sub>o</sub>7<sup>TM</sup> Fm<sup>9</sup> (w/Db) Fm<sup>6</sup> Fm<sup>9</sup> (w/Db) Fm<sup>9</sup> (NO7<sup>TM</sup>)

The main difference between this ensemble and the ones we examined earlier, lies in the sonority of the cellos—each of the two cello lines is now doubled, giving the overall ensemble sound more lustre and resonance than was possible before.

A six-note chord, especially in the high register, is full-bodied and vibrant when played by an ensemble of sixteen strings.

### EX. 206

EX. 206 is a musical score for a string ensemble. It features three staves: 12 Violins (VLNS.), 4 Cellos (VCL.), and Harp/Rhythm & HARP (RHYTH & HA). The key signature is one sharp (F#). The time signature is 4/4. The score includes various musical notations such as slurs, ties, and dynamic markings like *f* (forte). The 12 Violins staff has a "DIV. 2" and "DIV. 3" marking. The 4 Cellos staff has a "1-2" marking. The Harp/Rhythm & HARP staff has a "HARP GLISS" marking. The score includes several chords and melodic lines, with a prominent six-note chord in the high register. The bottom staff includes a box labeled "IMPORTANT MELODIC PASSING ONES".

This is a typical "soaring" string passage—very effective for those sections of an arrangement which call for an emotional lift.

Whenever the cellos are divided into three lines, I usually double the top line, as I did in example 206, unless one of the other two lines is important melodically.

### EX. 207

EX. 207 is a musical score for a string ensemble. It features three staves: 12 Violins (VLNS.), 4 Cellos (VCL.), and Harp (HP). The key signature is one sharp (F#). The time signature is 4/4. The score includes various musical notations such as slurs, ties, and dynamic markings like *f* (forte). The 12 Violins staff has a "DIV. 3" marking. The 4 Cellos staff has a "TENUTO" marking. The Harp staff has a "TENUTO" marking. The score includes several chords and melodic lines, with a prominent six-note chord in the high register. The bottom staff includes a box labeled "IMPORTANT MELODIC PASSING ONES".

If necessary, an ensemble of sixteen strings can be divided into seven lines (Ex. 208) or even eight.

EX. 208

12 VLNS. *MUTO* *MUTOO* *p* *mp* *ff*

4 VCL. *mm* *mp* *ff*

EX. 209

12 VLNS. *DIV. &4* *Ü É É* *mp* *r*

4 VCL. *Div. a4* *mpl*

A delicate, rustling effect can be created by having the whole string section play a trill or fingered tremolo, a very beautiful impressionistic device.

EX. 210

12 VLNS. *SUL TASTO* *FIP* *p* *ff*

4 VCL. *SUL TASTO* *DIV. A4* *p* *ff*

*PP (O<sup>9</sup> SUS<sup>4</sup> CHORD)*



With a section of sixteen strings, the arranger also has at his disposal the dark, robust sound which four unison cellos can produce as in this opening passage from Stravinsky's "*Fiery Ard Suite*."

## EX. 211



If we add four violas to this ensemble, we have a string section of twenty players. As I mentioned earlier, this ensemble projects a good deal of sonority, making it more suitable for recording situations in which the string section is prominently featured (Henry Mancini, Percy Faith, Montenegro, etc.) rather than as a background element.

Take another look at example number 200. The voicing shown for thirteen strings remains exactly the same for twenty—except now each violin line is carried by six players, the viola line is played by four, and each cello line by two—a considerable increase in sonority and string texture.

Notice the ratio of players—six violins—four violas—two cellos.

Example number 206 could be easily revoiced for twenty strings simply by substituting the four violas for the top cello line, and placing two cellos on each of the two lower cello lines.

The voicing in example number 203 would remain the same for twenty strings; the instruments would be redistributed by dividing the twelve violins 6-6, placing four players in unison on the viola line, and two players on each of the two cello lines.

For special ensemble sounds, a section of twenty could be divided into nine lines (see example number 193) or even ten, but of course one must realize that dividing the section into many parts necessitates a loss in overall sonority.

A large section does enable the arranger to achieve special antiphonal (statement and answer) effects as in this next example, the introduction to "Day By Day" as recorded by Jackie and Roy.

## EX. 212

*RUBATO*  
orv »3-6

OVLNS  
2SOLD VLNS.  
3 VLA.  
1 SOLO VLA.  
3 VCL.  
1 SOLO VCL.  
HP.  
BS. (SOUNDS AN OCTAVE LOWER) ARCO

ppp  
mf  
mp  
p  
UNIS.  
SOLI  
DIV. 3  
SOLO  
DAMP

## EX. 212 cont d. (2)

The musical score is for a string ensemble and includes the following parts and markings:

- 10 VLNS.** (Violins): Marked with *div. 2 (6)* and *(6)*. The notation shows a complex, multi-measure rest followed by a melodic line.
- 2 SOLO VLNS.** (Solo Violins): Play a melodic line with various dynamics.
- 3 VLA.** (Violas): Play a melodic line with various dynamics.
- 1 SOLO VLA.** (Solo Viola): Play a melodic line with various dynamics.
- 3 VCL.** (Cellos): Marked with *UNIS* and *mp*. The notation shows a melodic line with various dynamics.
- 1 SOLO VCL.** (Solo Cello): Play a melodic line with various dynamics.
- HP.** (Harp): Marked with *C#B#G#* and *mp*. The notation shows a melodic line with various dynamics.
- BS.** (Bass): Play a melodic line with various dynamics.

The score is written in 4/4 time and ends with the word **FINE**.

The two solo violins, solo viola, and solo cello form a string quartet, which provides a delicate contrast to the big, organ-like sound of the larger ensemble.

The student interested in acquiring technique in dealing with very large string ensembles should investigate the symphonic literature. I especially recommend the following: Tschaikovsky's *Serenade In C*, the symphonies of Brahms, Debussy's *Nocturnes*, Barber's *Adagio for "Strings"*, Bloch's *Concerto Grosso No. 1*, Hindemith's *Mathis der Maier*, Vaughn Williams' *Fantasia on a Theme of Thomas Tallis*, Copland's *Two Pieces for String Orchestra*, the third movement of Prokofiev's *Fifth Symphony*, Bartok's *Music for Strings, Percussion and Celeste*, and Henze's *Fantasia for Strings*.

### COMBINING STRINGS WITH WINDS

The sound of a well orchestrated string ensemble cannot be matched for purity and sweetness of tone. Occasions will arise, however, where the demands of a particular score will require the arranger to alter a pure string sound by combining it with various wind instruments.

Because of the great disparity in acoustical weight between wind and string instruments (one woodwind equals approximately sixteen violins), the arranger, when combining the two, must be careful to voice his ensemble in a way which will create a balanced blend, free of distortion.

We are aware of the possibility of adjusting any aural balance electronically, but, as stated earlier, our main goal should always be to achieve an acoustically valid balance during the actual performance of the score.

The addition of a single flute to the lead violin line of a string ensemble thickens the string tone considerably, sacrificing purity for extra body and intensity. This combination of string and wind sonorities is normally used when the arranger wants to give the line a little extra emphasis, especially when the volume is *mf* or louder.

In recorded example number 15, you'll hear a passage played by a string section, then the same passage with the lead violin doubled by a flute. Listen to the difference in timbre. To compensate somewhat for the difference in tonal weight, I indicate a lesser volume marking for the flute than I do for the strings.

Flutes can also be used within the structure of a string ensemble voicing.

## EX. 213

The musical score for Example 213 is written for a string ensemble and two alto flutes. The score is in 2/4 time and features a key signature of one flat (B-flat). The instruments and their parts are as follows:

- 9 VLNS. (Violins):** Divided into two groups (DIV. 2). The first group plays a melodic line starting on G4, moving up to A4, B4, and C5. The second group plays a sustained chord of B-flat4 and E5.
- 3 VLA. (Violas):** Divided into two groups (DIV. 2). The first group plays a melodic line starting on G4, moving up to A4, B4, and C5. The second group plays a sustained chord of B-flat4 and E5.
- 2 VCL. (Violins):** Divided into two groups (DIV. 2). The first group plays a melodic line starting on G4, moving up to A4, B4, and C5. The second group plays a sustained chord of B-flat4 and E5.
- 2 ALTO FLUTES:** Divided into two groups (DIV. 2). The first group plays a melodic line starting on G4, moving up to A4, B4, and C5. The second group plays a sustained chord of B-flat4 and E5.
- RHY. & HR. (Rhythm and Harp):** Plays a rhythmic pattern of eighth notes, starting on G2 and moving up to A2, B2, and C3.

The score includes various musical notations such as dynamics (f), articulation (accents), and chord symbols (C9sus4, Ebm9, Ab13, Ab9+13, Dbm9). The alto flutes are marked with a "CONCERT PITCH" instruction.

Here, the alto flutes double the lead violin line an octave lower, nicely filling out the string chord.

Clarinets can sometimes be used to thicken string lines. In recorded example number 16, an excerpt from my arrangement of "Firebird/Birds of Fire" (Giant Box CTX-6031/32), I voiced the violins in octaves and doubled the top line with an E♭ clarinet, and the bottom with a B♭; the resulting sound is tense and shrill—just the effect I needed for the passage.

A unison viola or cello line in the low to middle register can also be effectively thickened with a single clarinet, adding a noticeably "woody" flavor to the melody. You can hear this sound in recorded example number 17.

A bass clarinet or bassoon can strengthen a low register cello or arco bass passage, like the one illustrated in example number 211.

A French horn adds considerable body and thickness to a unison cello line. (Listen to recorded example number 18.) This sound was a favorite of composers Wagner and Strauss. It generates a good deal of emotional intensity and should be used sparingly.

A section of three horns voiced in lower-middle register chords can be effectively alternated with violas and cellos to provide a welcome change of tone color.

Horns can also be effectively combined with strings in mixed voicings.

## EX. 214 RUBATO

(CONCERT SKETCH)

MELODY

SOLO FLT.

3 HNS.

2 VLA.

2 VCL.

RHY.

BASS (SOUNDS AN OCTAVE LOWER) (ARCO)

PIZZ.

TEMPO

9 VLNS. UNIS.

DIV. 32

1-SOLO

2 VLA. (BASS CLEF)

VCL.

RHY.

RIT.

RUBATO

SUL TASTO UNIS.

ARCO

FINE

Here again, as in all mixed voicings, the principle of *internal resonance* is very important. For the first six bars, the horns, cellos, and arco bass are combined in rich chords. Each of the two elements, horns and strings are voiced in a way which will enable it to sound complete within itself while contributing to the overall sound. In bars seven through ten, the texture becomes lighter. Two horns drop out—the lead horn plays an obligato melody over the violas and cellos while the bass changes to pizzicato. The lead violins take over the melody in bar eleven, the second violins providing a descending counter line. In bar twelve, this line exchanges positions in the ensemble with the lead horn which rises to a high D $\flat$ , then moves downward in parallel sixths with the lead violins. In the last three bars, the horns move in contrary motion to the violas and cellos again—each element voiced independently yet still fulfilling its function as a component of the overall ensemble chord.

Sometimes, in bottom-rich voicings like this one, I add a bass clarinet on the chordal roots for a bit more resonance.

In any large mixed ensemble in which strings, reeds and brass are combined, the strings are acoustically the weakest element. In order to maintain as much string tone as possible in a concerted chord, the strings should be voiced as simply as possible in the high register.



This is the closing passage from my arrangement of Jim Webb's "Psalm 150." The intensity builds with each succeeding bar. The string section entrance exactly duplicates the initial brass chord, then quickly begins to rise into the high register. The cellos are voiced exactly like the violins—an octave lower. When the high reeds enter in bar fourteen, the ensemble sound reaches its highest level of intensity. The final D chord is probably the single most powerful ensemble voicing I've ever scored for recordings.

## EX. 215

## POCO A POCO CRESO

(CONCERT SKETCH)

12 VLNS. DIV. 2  
4 VCL. DIV. 2  
4 ROS.  
3 TPTS. 1-TACET  
2 FR. HNS.  
4 TBNS. TUBA 1,2 ONOT  
VOICES EV RY HEART PRAISE THE LORD  
RHY. G F Bb Am7 D

VLNS. 8va  
VCL.  
RDS.  
TPTS.  
HNS.  
TBNS. TBA.  
VCES. PRAISE YE THE LORD  
RHY. Bb C D Bb

EX. 215 cont'd. (2)

*POCO A POCO RIT.....*

VLNS. 8va

VCL.

RDS.

TPTS.

HNS.

TBNS. TBA.

VCES.

RHY. C D

TIMP.

FINE

In mixed ensembles where the brass play syncopated jazz figures, the strings are sometimes scored even more simply,

## EX. 216

(CONCERT SKETCH)

12 VLNS. Divas

4 N/CL. Div. 22

4 SAXO- PHONES UNIS.

3 TPTS.

4 TBNS. *rf*

VOCAL

WHEN SKIES ARE GREY AND YOU SAY YOU ARE BLUE I BRING THE

RHY. *Psy* F#m? B9 SUS 4 B9 C E MA 9 \*9sus C 9 Q#9 SOB 4

=

VLNS. UNIS.

VCL.

SAXES

TPTS. *mp* *mf* *f*

TBNS. *mp* *mf* *f* SOLI

VOC

SUN SM: UNC THROUGH FOR YOU I WANT TO

RHY. *m* G\*9 C\*m7 F\*9 C 6 9sus 4 Cma7 Dm7 *m*

I WANT TO BE HAPPY

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EX. 216 cont'd. (2)

*RUBATO*

DIV. 12 A

VLNS. *P*

VCL. *I*

SAXES.

TPTS. *f*

TBNS. *air ü*

VOC. *í i*

RHY.

*SE HAP-PY BUT I CAN'T BE HAP-PY HOWCOU) I, WHY SHOULD I,*

*Em<sup>7</sup> Fm<sup>7</sup> E<sup>7</sup>tg A<sup>7</sup> A<sup>9</sup> Dm<sup>7</sup> Em<sup>7</sup>*

*TEMUTO*

*RIT.*

VLNS. *Willi n*

VCL. *A OIV. 12 TEMUTO*

SAXES

TPTS. *P*

TBNS.

VOC. *I*

RHY.

*UV-T\* / MAKE YOU HAP~ PY, TOO.*

*FM<sup>7</sup> Fw<sup>n</sup> G 0m<sup>7</sup>-S TENUTO O CM<sup>7</sup>9*

*JF*

*FINE*

This is the closing section of a vocal background arrangement of "I Want To Be Happy" done in the style made so famous by Nelson Riddle in his many albums for Frank Sinatra (Ex. 216). The example begins with the bridge of the tune—the strings voiced in a brilliant register with the unison saxes providing a counter line. As the brass section comes to the foreground, the string chords become superfluous and are abandoned in favor of a sustained high G in the violins. The cellos would only be in the way while the trombones play their loose jazz phrasing, so, in order to avoid clutter, I had them tacet until the brass stopped playing.

In the final chord, the strings are voiced very simply in the high register, where they can be heard above the big band.

By studying symphonic scores, a great deal can be learned about orchestral doubling which can be applied to commercial arranging. I especially recommend: Respighi's *Pines of Rome*, Mussorgsky's *Pictures at an Exhibition-orchestra* by Ravel (compare it with the original piano version), Stravinsky's *Firebird Suite*, and the second symphony of William Walton.

See der  
of the Aquar

## CHARTER FOUR: The Rhythm Section

In the mid 1950's, when I first became involved in studio recording, the standard rhythm section consisted of piano, string bass, guitar, and drums. Because the general level and direction of commercial recorded music tended to be fairly consistent, this basic unit was adequate for most sessions.

When rock and roll became popular, musicians (especially rhythm section players) were forced to adapt to the new trend. Elaborately modified electric guitars, along with more sophisticated amplifiers, were used with increasing frequency. Electric basses began to replace acoustic basses for certain record dates. Bass drum heads became tighter, tom-tom heads looser than they had ever been before. New electronic keyboard instruments were invented, providing the arranger with brand new sounds.

In the 1960's, another trend appeared-bossa nova. Almost overnight, this smooth jazz-influenced Brazilian music with its gently plucked classical guitar chords and its churning percussion effects made a deep impression on the recording scene. It continues to play a big part in commercial music today.

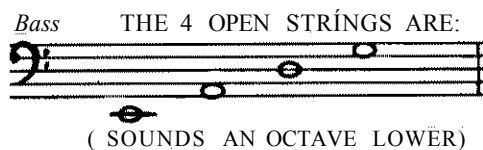
Folk music, with its simple unamplified sounds also became a major pop movement in the 1960's. Several hybrid forms emerged—jazz-rock, folk-rock, country blues, bossa-rock, etc., further enriching the content of the music being j iayed in the recording studios.

The standard all-purpose rhythm section of the 1950's has evolved into a highly sensitive and flexible group of musicians who have absorbed ali the influences we've mentioned, and more, in order to meet the varied demands of the music they are called upon to perform daily.

## BASS

The bass is the foundation not only of the rhythm section, but of the whole recording orchestra.

## EX. 217

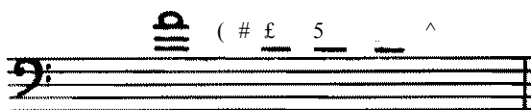


Today's recording techniques make the bass much more audible and thus more prominent than it usually is in a live performance. The wise arranger will use this to his advantage, making sure the bass sound is left clean and unclouded by other instruments, especially when he is fortunate enough to have a Ron Carter or Richard Davis on his session.

There are two different basses in use today. *Acoustic bass*, also referred to as *unamplified*, *upright*, *stand-up*, *concert*, *double-bass*, *contrabass*, *string bass*, or *bass viol* is used primarily for jazz, ballads, and bossa-nova. The range of the bass extends upward to high A (Ex. number 218) unless you are writing for a virtuoso. Some players can achieve consistency more than an octave higher. Some instruments have an extension on the low E string which allows them to go down to C below the staff (Ex. 219).

## EX. 218

MORE DIFFICULT



## EX. 219



In most commercial music, the bass is normally used as a component of the rhythm section, played *pizzicato* (plucked with the fingers). In a recording studio, it also has considerable power as a sustained orchestral voice when played *arco* (with the bow).

Double stops are possible; the most sonorous and easily playable ones are those encompassing the intervals of a perfect fourth or perfect fifth. Triple and quadruple stops are very difficult and have no practical value.

Natural harmonics and, in the extreme high register, artificial harmonics are possible. Because of their delicate sound, they are only useful for solo work—impractical for orchestrated passages.

EX. 220 *Natural Harmonics*





Here are two examples of a stand, rd 12 bar blues pattern as it might be played on acoustic bass (Ex. 221) and on electric bass (Ex. 222).

*EX. 221 Acoustic Bass*

1ã f<sup>r</sup> r r i P r f i | 1 i J J i J r T p à ü

(WITH APOLOGIES TO RON CÁRTER)

$$\overset{\wedge}{\text{m}} \text{ i } \text{I} \equiv \text{r} - \text{f f f i f f ? i}_{\text{n}} \text{j} \text{M j p p É i}$$

\* (FOOTNOTE)

[illegible]

\* THIS IS A FALSE GLISS, SLOWLY UPWARD  
ON THE "E" STRING ONLY TO THE C  
ABOVE THE STAFF, THEN SHIFTING AB-  
RUPTLY TO THE "G" STRING FOR THE  
HIGH F.

EX. 222 *Electric Bass*

MODERATE ROCK FE EL  
♩ = 115

P i ^ V = r i i N = 5 # M d

The style of the music dictates the instrument to be used. In an arrangement, I would almost never write out such an intricate line because an inventive bass player will create a better bass line than I could ever write. I usually just indicate the chord symbols and leave it to the individual bass player's musicianship and judgement to improvise a line accordingly. However, the chord symbols *must be complete*, containing all modified tones within the chord in order for the bass player to have a complete understanding of the harmonic nature of the piece. Never write a bass part indicating only the bare outline of the chords (Ex. 223). This method (which I have seen advocated in other arranging manuals) is completely outdated. Naturally, there will be sections of an arrangement where you will want a specific bass line to be played (Ex. 224), especially in syncopated ensemble passages containing fast moving changes, where it makes more sense to write the notes rather than the chord symbols.

EX. 223

Chord symbols: C, F, G<sup>7</sup>, Am<sup>7</sup>, Dm<sup>7</sup>, G<sup>7</sup> ETC.

EX. 224

Chord symbols: C, F, G<sup>7</sup>, Am<sup>7</sup>, Dm<sup>7</sup>, G<sup>7</sup> ETC.

INSTEAD OF - ^

Chord symbols: C, F, G<sup>7</sup>, Am<sup>7</sup>, Dm<sup>7</sup>, G<sup>7</sup> ETC.

Most recording bass players are capable of playing both acoustic and electric basses, but usually specialize in one or the other.

## GUITAR

EX. 225

THE 6 OPEN STRINGS ARE\*.

(SOUNDS AN OCTAVE LOWER EXCEPT BASS GUITAR).  
V WHICH SOUNDS TWO OCTAVES LOWER )

- £ THESE NOTES BECOME INCREASINGLY MORE DIFFICULT AS THEY ASCEND.  
THE BRACKETED NOTES ARE POSSIBLE ONLY ON INSTRUMENTS (ALMOST ALWAYS AMPLIFIED ) WITH A CUTAWAY BODY.

Today's recording guitarist must be absolutely certain of the sounds that will be required of him on a session. There are now so many guitar effects available to the arranger, it is entirely possible to walk into a studio and find the guitar player with six or seven instruments, each one different.

*Classical guitar* also referred to as *gut string*,<sup>1</sup> *round-hole gut string*, *Spanish guitar*, *Spanish gut*, and *bossa nova guitar*, is almost always unamplified, though there have been experiments using special ceramic pickups which can be temporarily attached to the instrument. The classical guitar is usually played with the fingers, producing a lovely warm sound. In popular recorded music, the most famous proponents of this sound are Charlie Byrd and Laurindo Almeida.

In recording situations wherein single string solo lines predominate, the classical guitar can be played with a pick, in order to achieve a greater degree of clarity, or with a combination of pick and fingers.

The *flamenco guitar* is very similar to the classical guitar, though a little smaller and strung with lighter gauge strings, producing a somewhat brighter sound. For this reason, it is sometimes used instead of a classical guitar.

*Folk guitar*, also referred to as *round-hole steel string guitar*, is unamplified, strung with steel strings, played with fingers, pick, or a combination of fingers and pick. This instrument is very effective for folk, folk-rock, and country-rock music, and has been used beautifully by Simon and Garfunkel, James Taylor, and Peter, Paul and Mary on their popular recordings.

1. Although the term *gut* is commonly used, the strings are really made of nylon.

*12-string acoustic guitar*—unamplified, strung with six pairs of steel strings (two pair in unison, four pair in octaves), played with fingers, pick, or a combination of the two, produces a beautiful ringing sound, at times resembling a harpsichord, and in the extreme high register, sounding somewhat like a mandolin. This instrument is especially effective when used for rhythmic support in a folk or folk-rock médium. It contributed greatly to the success of the Mamas and Papas group.

The *rhythm guitar*, also referred to as "F-hole guitar" because of the two F-shaped openings in the body, is used exclusively as a component of a rhythm section—never as a solo instrument. It is strung with bronze strings and strummed with a pick, producing a biting, percussive sound which Freddy Greene used so beautifully in the Count Basie Band.

The five instruments described above tend to sound best when playing in a key which enables them to utilize as many open strings as possible (G-D-A-E), thereby taking advantage of the overtones and characteristic acoustical properties inherent in them. It is possible to retune the strings<sup>2</sup> up or down a semi-tone in order to accommodate keys which would otherwise not project the sound as well (G $\sharp$ -A $\flat$ -D $\flat$ -E $\flat$ -B $\flat$ -F). When such artificial tunings are employed, the guitar should be treated as a transposing instrument; for instance, if the arrangement is in the key of B $\flat$  and the guitar is tuned up a semi-tone, the guitar part should be written in the key of A in order to avoid having the guitarist transpose it himself. Key selection is much less critical when writing for an electric guitar inasmuch as its sound is created by transmitting the vibration of the strings through an amplifier, where it is controlled, thereby giving approximately equal sustaining power to open and fingered notes alike.

The *combination electric guitar*, or *combo guitar*, as it is commonly known, is a bridge between acoustic and electric guitars. Essentially, it is a rhythm guitar with an electronic pickup attached to the base of the neck or tailpiece (unlike other electric guitars which have pickups built into the top of the body which come into direct contact with the strings), thereby allowing the top to vibrate naturally, creating a round warm tone when the amplifier is employed. With the amp off, the combo guitar can approximate the sound of the true rhythm guitar. It is a dual-purpose instrument combining properties of both amplified and unamplified guitars—hence the designation, *combo guitar*.

This instrument was used by the great pioneer of jazz guitarists, Charlie Christian, and more recently by Jim Hall, Johnny Smit<sup>3</sup> and, when he was a member of the George Shearing Quintet, Chuck Wayne.

2. This can also be done by employing a capo—a flexible clamp which fits over the fingerboard.

*Hollow body electric guitar*, also known as *jazz guitar*, is almost always played with a pick.<sup>3</sup> It produces a full, rich sound, even though amplified, because of its hollow body construction, which makes use of the natural sound properties of the wood. By changing the amplifier settings or the dials built into the guitar, the sound of the instrument can be altered considerably, even producing strident rock effects. The basic function of the hollow body electric guitar, however, is as a mellow, all-purpose instrument, especially suited to jazz playing. It blends well with other instruments and can be used effectively to double saxophone, trombone, cello, vibraphone, or piano lines.

*Solid body electric guitar*, also known as *rock guitar*, or sometimes *flat-back guitar*, is essentially a slab of wood with a built-in pickup, possessing no natural sound of its own—it must be amplified to be heard at all. This guitar is used by virtually all rock groups as a solo lead instrument. It is usually strung with light gauge strings, enabling the player to bend and slide notes easily. In a rock context, it can be particularly effective when used with various distorting devices. Conversely, through judicious use of the built-in volume and tone controls, this guitar can be made to approximate the warmth of the hollow body electric guitar.

*12-string electric guitar*, a solid body guitar with built-in pickup, strung with six pairs of strings just like its acoustic counterpart. It is used chiefly for solo lines calling for a slightly twangy, ringing sound, and for harpsichord-type background effects.

*6-string bass guitar*, also known as *Dano bass* or *Danelectro* (not to be confused with the 4-string electric bass, which is scored in bass clef). Although the bass guitar range is virtually identical to that of the electric bass, it doesn't produce the same dark, guttural, biting quality. In a pinch, it could be used to play a bass line, but is best utilized in unison with a bass or low piano for percussive emphasis, or as a color instrument, as in the Bert Kampfert sound, which is achieved by picking the strings and muting<sup>4</sup> them at the same time, thereby cutting off most of the resonance.

3. The most notable exception is the late Wes Montgomery, who produced his distinctive sound by stroking the strings with his thumb.

4. The tone of any guitar can be muted by applying the palm of the right hand loosely to the string as it is being struck.

A guitar accompaniment part usually consists of a series of chord symbols above the desired rhythm pattern.

*EX. 226 Rythm Guitar*

EX. 227 12 String Acoustic Guitar

The first staff of music is in treble clef with a key signature of three sharps (F#, C#, G#) and a common time signature (C). The melody consists of eighth notes: E4, A4, D5, A4, D5, A4, E4, followed by a half note B4 (labeled 'SUS 4') and a whole note E4. The notes E, A, D, A, D, A, E, and B are all marked with an accent (^).

If the guitar is to play an improvised solo, indicate *solo ad lib* at the beginning of the chord pattern and *end of solo* where the solo ends.

I must stress the importance of indicating the *complete* chord symbols as we did for the bass. If the orchestra is playing a phrase such as example 228, the arranger must not be lazy and indicate only the basic chords for the guitarist (Ex. 229).

**EX. 228**

EX. 228

(STRINGS)

Chord symbols and figured bass notation:

- 5
- \*WG\* +5
- C Ma/CM «J<sup>T</sup>
- B 7 \* 9
- B<sup>b</sup>13
- sus 4
- £7+9
- £^7+9 Q7+9+5 ç7f5
- B
- B + ? W 0 7 <sup>TM</sup> J
- C M < 9
- add6

*EX. 229*

EX. 229

C B<sup>7</sup> B<sup>b7</sup><sup>sus 4</sup> F<sup>7</sup> E<sup>b7</sup> D<sup>7</sup> G<sup>7</sup> B C Maj<sup>®</sup>

Not only will this mislead him by giving an incorrect impression of the musical intent of the passage, but in a recording situation, it is entirely possible for the disparity in texture between the guitar and the rest of the orchestra to be heard, creating an ill-defined aural picture.

Because of the basic tuning of the open strings, many voicings can be impractical or even impossible to play. This is such an example.

## EX. 230

Chords indicated:  $C^{+9}$ ,  $p7^{+9}$ ,  $f7^{+9}$ ,  $jrbl$ ,  $A^bMa^{13}$ .

\* A WAVY LINE IN FRONT OF A CHORD INDICATES IT IS TO BE ROLLED OR STRUMMED SLOWLY.

If re-voiced, this passage is playable.

## EX. 231

Chords indicated:  $C^{+9}$ ,  $p7^{+9}$ ,  $E7$ ,  $A^bMa^{13}$ .

To save time and avoid confusion, whenever the arranger wants the guitar to play a solo consisting of a definite melodic line over a chordal pattern, it is best to notate it as simply as possible, trusting the guitarist to voice the passage rather than attempting to write out all the notes of each chord.

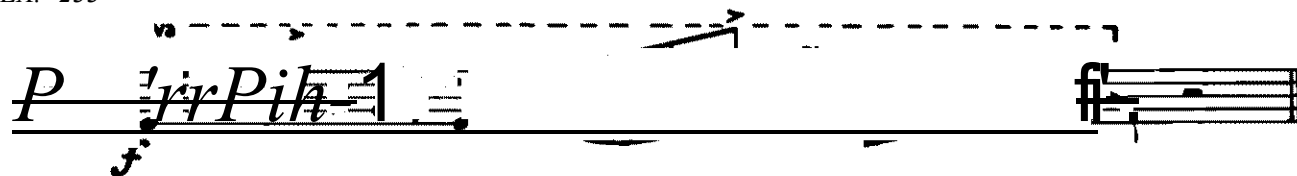
## EX. 232

Chords indicated:  $r.7^{+9}$ ,  $f7^{+9}$ ,  $C7^{+9}$ ,  $fJMI$ ,  $A^{+}toa^{+}$ .

In rare cases where a normally impossible voicing is absolutely essential, the guitarist, if given advance warning, will be able to retune his strings to accommodate the passage.

If an extended passage is to be played in a high register (upwards of G or a above the staff), the guitarist usually prefers to have the notes written in the staff with an 8va indication.

## EX. 233



The use of harmonics gives the guitar a veiled, muted quality. Natural harmonics are possible on any guitar, but because of their extreme delicacy, are most effective when played on the classical guitar in quiet solo passages.

Artificial harmonics are achieved by simultaneously touching the string lightly with the index finger of the right hand and plucking the string with the middle finger or with a pick held between the middle finger and thumb. Both Jim Hall and Tal Farlow have employed this technique on the electric guitar for a change of color in slow ballads.

The proper notation of harmonics is a matter of some debate among guitarists and composers. I prefer to indicate them the same way I indicate violin harmonics—notating the actual pitch with a small circle above the note (Ex. 234). If the passage is a fairly lengthy one, I write "harmonics—actual pitch" and extend a dotted line to indicate the duration of the effect.

## EX. 234

NATURAL HARMONICS  
(SOUNDS AS WRITTEN )

## EX. 235

HARMONICS  
(ACTUAL PITCH)

The guitarist will combine natural and artificial harmonics at his discretion TO facilitate the execution of passages like the one above.

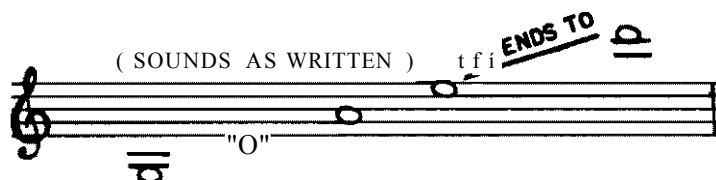


## OTHER PLECTRUM INSTRUMENTS

In addition to the guitars, there are various other plectrum instruments available to the arranger for use in situations where a unique or special color is necessary.

The *mandolin* is constructed with four pairs of wire strings tuned in unison (Ex. 236), producing a twangy, slightly out-of-tune sound. Its use is limited chiefly to music calling for an obvious "Italian" flavor.

EX. 236



The *banjo*, of course, is essential to blue-grass country music and sometimes Dixieland. This instrument is best entrusted to a specialist, who usually requires nothing more than a set of chord changes, unless a specific melody is to be incorporated into the passage.

The *dobro*, also referred to as *bottle-neck* or *slide guitar*, is an acoustic instrument, pitched like a guitar (although special tunings are often employed), with a metal plate attached to the body. It is played with a steel bar in the left hand, while fingered or picked with the right, and produces a characteristically "country" sound, with many glisses and bent notes. It is a solo and "fill" instrument which can be very effective in proper context. The dobro sound can be approximated on other acoustic guitars with the use of a metal bar or "pinky slider," which fits over the fifth finger of the left hand.

Another instrument sometimes used in country music and music with a Hawaiian flavor is the *electric pedal steel guitar*-3. This horizontal multiple-necked instrument played with a steel bar and several picks attached to the fingers. Its chief characteristic effect is a long, sustained swooping glissando, which, unfortunately, tends to overpower and completely dominate any situation in which it is used.

The *sitar*, the very soul of Indian music, demands years of dedicated study. Vincent Bell has invented an *electric sitar*, tuned and played like a guitar, which closely approximates the characteristic buzzing, rattling sound of the original instrument; it can be useful in special situations.

The *autoharp* is a small, hand-held instrument, strung with wire strings. It is equipped with a set of buttons, connected to dampers which, when depressed, automatically select the strings necessary to produce corresponding chords. The instrument is always strummed, and is effective in simple folk music.

A complete list of special plectrum instruments includes the *ukelele*, the *lute*, the *dulcimer*, the *koto*, the *tamboura*, the *oud*, the *buzuki*, and some even more exotic string boxes. Because of their "extremely limited usefulness to the recording arranger, we will not discuss them here.

The recording guitarist has at his disposal various electronic devices which are designed to distort the sound of the instrument in order to achieve soecial desired effects. Used discretely, these devices can be effective and useful. Overusing them can result in cacophony.

In recorded example number 19, a rhythm section will play two choruses of basic blues. Over this, we will superimpose, at four bar intervals, six different guitar sounds: (1) classical, (2) rhythm, (3) folk, (4) 12-string acoustic, (5) hollow body jazz electric, and (6) solid body electric (with distortion). Notice how the overall rhythm feeling changes with the entrance of each new guitar sound.

## DRUMS

The basic drum set consists of bass drum, snare drum, one or more tom-toms, hi-hats, and two or more cymbals of different weight, ali scored in the bass clef.

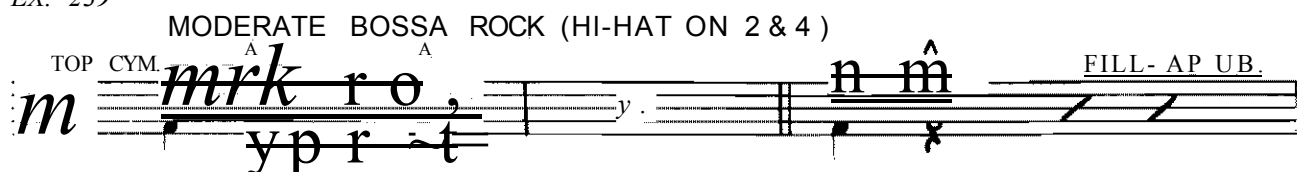
### EX. 237

When several components of the drum set are combined, the notation can become confusing, especially in a recording situation where sight reading is so important (Ex. 238). Most arrangers write as simple a drum part as possible, indicating the general rhythm pattern along with rotations for musical style (Ex. 239), relying on the taste and judgment of the drummer to provide his own fills and special effects. In passages calling for a definite syncopated pattern, as in a big-band shout chorus, the rhythmic pattern is still notated as simply as possible. (See Chapter Six, example number 281.)

EX. 238



EX. 239



A recording drummer always brings a selection of sticks, brushes, and mallets to the record session. An especially conscientious one will also bring special equipment. Mel Lewis, the great drummer who drove the Stan Kenton and Gerry Mulligan bands so magnificently, has special tom-toms which he brings when he knows he will be called upon to create big-band excitement. João Palma, formerly with Brazil '66, insists on using a special hi-hat cymbal which he used on every record he made with Sergio Mendes. An arranger appreciates this kind of help from musicians; it can make a big contribution to the success of a record date.

## PERCUSSION

In addition to the basic drummer, the contemporary rhythm section usually includes a percussion specialist. His function is to provide special colors and extra emphasis to the overall rhythm section sound. He brings to the recording session a large box filled with tambourines, shakers, wood blocks, triangles, and other instruments of indefinite pitch. These are notated as simply as possible (Ex. 240). The recording percussionist is usually also proficient in the playing of mallet-struck instruments.

## EX. 240

TAMBOURINE                      SHAKER                      BONGOS

CONGA DRUMS                      GOURDI OR SCRAPER                      WOOD BLOCKS                      CABASSA

TRIANGLE

1                      1                      n l.

*Vibraphone* (vibraharp) — vibes are especially effective when used to double a flute line or in unison or octaves with guitar or harp. The sound of the instrument can be modified by using three different types of mallets (soft, medium, and hard) and by changing the speed of the vibrato. Four-mallet chords are possible and effective, but excessively chromatic passages should be avoided except at slow tempos.

EX. 241                      *Vibraphone (or Vibes)*

*m*                      *ff*

*sf* (SOUNDS AS WRITTEN)

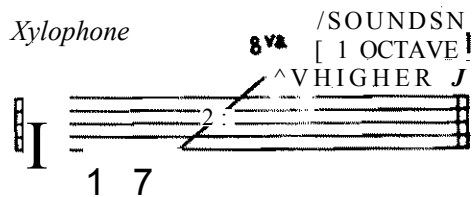
EX. 242                      *Vibes*

IEASIÜT PLAFABLEI

*mp*                      *DIFFICULT*

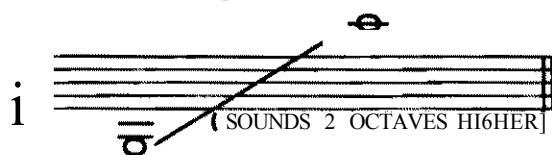
*Xylophone* — can be very useful in unison with flutes, pizzicato strings, or over heavy brass.

EX. 243

*Xylophone*

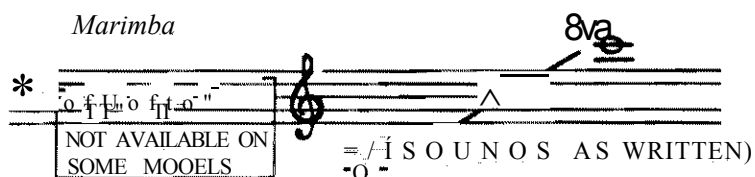
*Bells* (glockenspiel) — very useful in unison or octaves with flutes or piccolos, and in delicate octaves with harp.

EX. 24\*

*Bells (or Glockenspiel)*

*Marimba* — a very good recording instrument, especially in unison with *br* - flutes, and in two, three, or four-mallet tremolo chords (Ex. 246).

EX. 245

*Marimba*

EX. 246



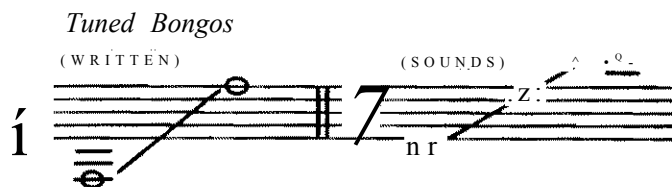
*Bass marimba* — a large, cumbersome instrument played with heavily padded mallets. It has a low, soft thumping sound with no sustain, which can be effective in situations calling for an exotic touch. The arranger must be very careful to allow plenty of aural room for this instrument—it can be smothered very easily.

## EX. 247



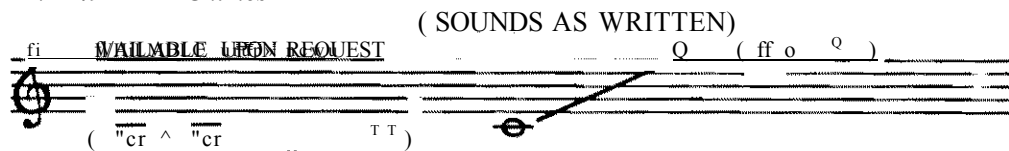
*Tuned bongos* (Boo-Bams)—a set of small, chromatically tuned plastic heads, attached to wooden resonators, and mounted on a frame. This instrument is struck with marimba mallets. It has no sustain and is useful only for staccato effects.

## EX. 248

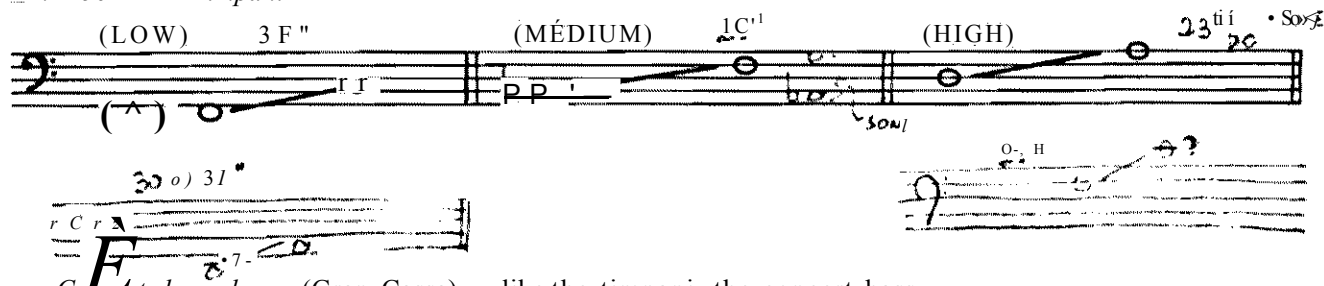


*Chimes* — the harmonic overtones which resound when any of the fundamental bell tones is struck tend to distort and blur the shape of a melody played on the instrument. To compensate for this, I try to avoid rapid passages, and usually double the line with another instrument (French horn, harp, pizzicato strings, etc.) according to the character of the music.

## EX. 249 • Chimes

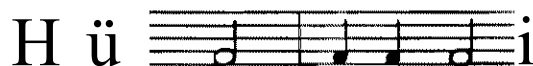


*Tim ini* (kettledrums) — recording timpani are equipped with pedals, making plisses possible. A perfect example of the use of timpani glisses can be heard in Bartok's masterpiece, *Music for Strings, Percussion and Celeste*. The timpani have great carrying power in a recording studio. They must be handled with care to prevent them from covering other instruments. I usually indicate a softer volume marking for them than for the rest of the orchestra. Ample time must be allowed for tuning changes.

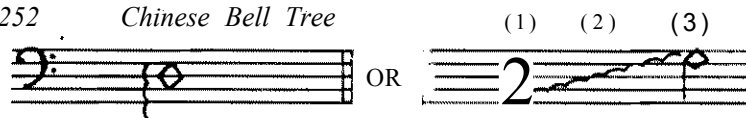
EX. 250 *Timpani*

*Concert bass drum* (Gran Cassa) — like the timpani, the concert bass drum has great carrying power—it must be used with discretion.

## EX. 251

*Concert Bass Drum*

*Chinche bell tree* — a series of small bells arranged on a frame either from high to low or low to high register. The individual bells do have barely discernable pitches, but are covered by many overtones, making the instrument useful solely as a color device. By scraping a small mallet across the bells, a glassy, ringing sound is achieved which can be effective if not overdone. It is notated this way.

EX. 252 *Chinese Bell Tree*

*Gong* — gongs come in various sizes from a small dishpan to a deep-toned giant which reverberates for several minutes if not dampened; use them sparingly.

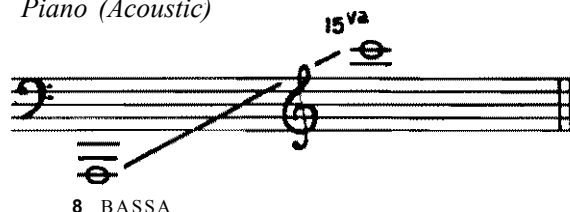
Some percussionists specialize in the playing of Latin percussion instruments—conga drums, bongos, timbales, cabassa, and other assorted exotic noisemakers, including some special homemade ones. On recorded example number 20, you will hear, through the use of extensive overdubbing, the creation of a complex and exciting track; beginning with a basic jazz-rock beat on the standard drum set, then adding, in order, cabassa, congas, cowbells, wood block, tambourine, shaker, and triangle until they are all wailing together.

I rarely indicate a definite pattern for a Latin specialist, preferring to rely on his musical taste and experience to add his own personal touch to the arrangement.

### KEYBOARDS

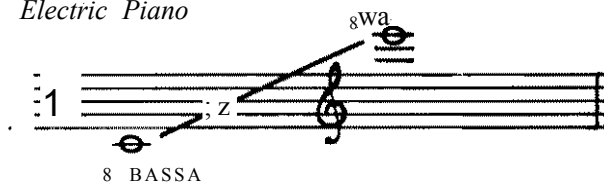
*Piano* — the piano has the widest range of any acoustic instrument.

#### EX. 253 *Piano (Acoustic)*



*Fender Rhodes electric piano* — has become very popular for recording. Its range is somewhat smaller than that of the acoustic piano.

#### EX. 254 *Electric Piano*



It is less percussive and has a much mellow tone than an acoustic piano, sometimes sounding very much like a vibraphone. Like the vibes, it has a built-in vibrato which can be adjusted for speed and intensity.



A piano part usually consists of a series of chord changes with notations above the part indicating the style of playing which is to be employed (solo ad lib, single-note fills—high register, block chords, etc.) unless a definite melody or voicing is desired, in which case it is written out. If the bass is playing a definite written line, I always cue it in on the pianist's part so he can be aware of it and adjust his playing accordingly.

The recording pianist is also expected to play *celeste*.

**EX. 255**      *Celeste*

(SOUNDS 1 OCTAVE HIGHER)

8va

*Keyboard glockenspiel* — this instrument possesses a considerably harder attack than the celeste, with a sound very much like that of the mallet-played glockenspiel but with a quicker damping action.

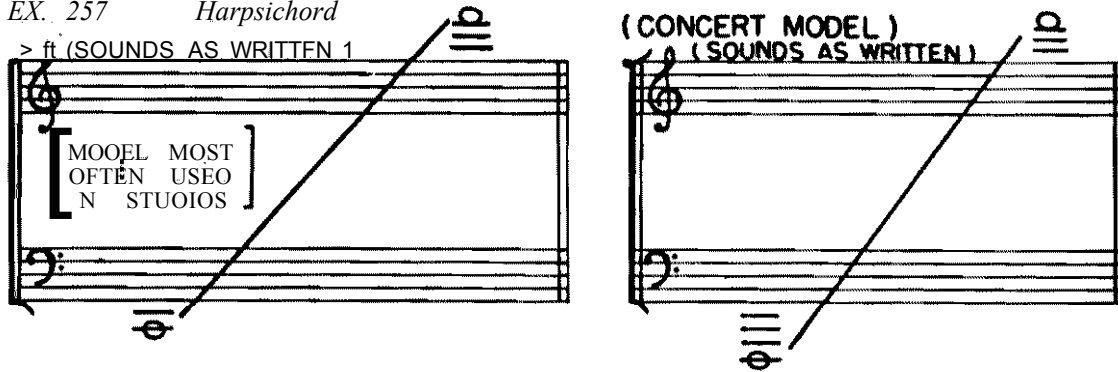
**EX. 256**      *Keyboard Glockenspiel*

(SOUNDS 2 OCTAVES HIGHER)

8va

*Harpsichord* — the delicate timbre of this instrument can be modified slightly through the use of draw bars. Some models have two keyboards or manuals (referred to as double-bank), which can be coupled to produce simultaneous octaves.

EX. 257 *Harpsichord*  
> ft (SOUNDS AS WRITTEN 1



*Electric harpsichord* — projects a brighter, much more substantial sound, sacrificing delicacy for vibrancy and sustaining power.

The new electronic keyboard instruments, *clayinet*, *rocksichord*, *mellotron*, etc., require no special technique but do demand some patient investigation of their various stops and switches and the sound combinations available from them. As with the guitar, devices which distort the sound (fuzz, wa-wa, echo-plex) can be attached to these instruments. A keyboard player who really understands the electronic keyboards can be a big help to the arranger by suggesting sounds the arranger may not have been aware of.

*Organ*<sup>5</sup>- this is a fairly complicated instrument, usually handled by a specialist, although some pianists have taken the time to investigate its capabilities. The organ can be treated as part of the rhythm section to add extra punch, in which case I write a set of chord changes, just as I do for the piano, with a notation above, indicating the type of sound desired (bright with vibrato, percussive edge, etc.), or it can be used to provide a sustained sound with either a solo line or a completely voiced chordal pattern, as you would score a string section. Here again, I indicate the type of sound I need (shrill flute, quasi violins, strong brassy sound, etc.), trusting the organist to arrange his stops accordingly until he finds the combination which best suits the needs of the arrangement.

EX. 258 *Full size Hammond Organ*  
(usually provided by recording studio)

15<sup>va</sup>

MANUAL X

MANUAL 31

PEDALS

XX É É

31 ~~ARRANGE SAME~~ MANUAL 1

TIMBRE CAN BE ADJUSTED SOMEWHAT - THE REGISTER OF THE ENTIRE PEDAL RANGE CAN BE LOWERED BY ONE FULL OCTAVE.

5 There are other small portable organs available for rent<sup>6</sup> which can be made to sound very much like the standard Hammond, especially with the Leslie speaker which produces a distinguishable whirling vibrato. Most of these portable organs (Farfisa, Vox, Lowrey, Yamaha, etc.) also contain individual special effects not found on others.

*Synthesizer* — The electronic synthesizer is essentially a super-organ whose potential for creating special sounds is limited only by the capabilities of the machine itself (Moog, Arf and Oberheim are three of the most widely used brands) and/or the imagination of the person using it. Here again, no special keyboard technique is required to play the synthesizer. The keyboard action is the same as that of an organ. The *programming* of these machines however, does require intensive study and considerable dedication.

The great strides in technology, which in just a few years has transformed a cumbersome mass of oscillators and patch cords capable of producing one note at a time, into portable units capable of producing up to eight tones simultaneously, have also created a new breed of musician—the synthesizer specialist—whose ability to translate an arranger's non-technical jargon ("let me have a whoop in bar 10, then some popping corks to underline the flute and finish it off with a clap of thunder in the last bar") into dial settings which will approximate these sounds which have, by now, become an integral part of our daily musical diet—as demonstrated in the recent music of such popular groups as Weather Report, Return to Forever, and those of Herbie Hancock and Jan Hammer.

The musical language of the synthesizer is here to stay. Its use is no longer a novelty—it is being organically enfolded into our musical language. Some arrangers have integrated the electronic synthesizer into their music, even becoming proficient programmers themselves. Others, like myself, are content to use it sparingly—saving it for those occasions when a special sound is needed which cannot be achieved by conventional instruments.

As an example, listen to recorded example 21, an excerpt from a Randy Weston recording in which a synthesizer was used to create a weird rising glissando effect, providing an unusual texture in contrast to the big brass ensemble surrounding it.

I have also found the synthesizer to be very useful in reinforcing or "thickening" acoustic sounds—especially when I'm working on a tight budget. A small string section, for instance, can be made to sound bigger when combined with a synthesizer which has been programmed to imitate an acoustic string sound. This can also be done with brass and flutes.

The electronic synthesizer is no longer a gimmick or musical toy. The wise arranger will use it as he would any other instrument, incorporating it into his score *organically*, allowing it to fulfill its special role without "tricking up" or unnecessarily dominating the music—thereby maintaining a satisfying overall balance between acoustic and electronic sound.

# CHAPTER FIVE' Voices

EX. 259

SOPRANO

ALIO

TENOR

BASS

JE- SU JOY OF MAN'S DE- SIR- ING

JE- SU JOY OF MAN'S DE- SIR- ING

JE- SU JOY OF MAN'S DE- SIR- ING

JE- SU JOY OF MAN'S DE- SIR- ING

==

S

A

T

B

HO- LY WI- DOM. LOVE MOST BRIGHT

HO- LY WLS- DÖM, LOVE MOST BRIGHT

HO- LY W/S- DÖM, LOVE MOST BRIGHT

HO- LY WLS- DOM, LOVE MOST BRIGHT

ETC

The above example, from Bach's masterpiece, *Jesu, Joy of Man's Desiring* (Cantata number 147) illustrates perfectly the classical style of vocal scoring. Each line moves logically according to the laws of proper voice leading,<sup>1</sup> while contributing to the sonority of the chordal voicing. The spacing and general style resembles that of classical string quartet writing.

This music was designed to be sung by a large group of voices, as many as possible on each part. The Mormon Tabernacle Choir's recording of this beautiful music is especially recommended.

Music for large choral groups, as in this example, is usually divided into four lines,<sup>2</sup> each one corresponding to a different vocal quality and range.

#### EX. 260

The diagram illustrates the traditional division of vocal sounds into four lines, each corresponding to a different vocal quality and range. The parts are labeled on the left: SOPRANO, ALTO, TENOR, and BASS AND BARITONE. Each part has a 'NORMAL RANGE' indicated by a line. The Soprano part is labeled 'SOUNDS AS WRITTEN' and 'NORMAL RANGE'. The Alto part is labeled 'SOUNDS AS WRITTEN' and 'NORMAL RANGE'. The Tenor part is labeled 'SOUNDS AN OCTAVE LOWER' and 'NORMAL RANGE'. The Bass and Baritone part is labeled 'SOUNDS AS WRITTEN' and 'NORMAL RANGE', with 'BASS ONLY' and 'BARITONE ONLY' indicated for different sections. The notation includes various musical symbols like notes, rests, and accidentals.

This traditional division of vocal sounds is still used in commercial recorded music by groups like the Anita Kerr Singers, Ray Conniff, Henry Mancini, and others. Modern harmony usually necessitates dividing the choir into more than four lines.

1. For a discussion of proper voice leading, see Chapter Six.
2. When necessary, subdivisions within sections—usually sopranos and tenors—can expand a chord to five or six lines.

Here is a typical example.

## EX. 261

Musical score for "Days of Wine and Roses" featuring Soprano, Alto, Tenor, and Bass staves. The key signature is B-flat major (two flats) and the time signature is 4/4. The tempo/mood is marked *mp* (mezzo-piano). The lyrics are: "THE DAYS OF WINE AND ROS-ES LAUGH, AND". The Soprano and Alto parts have a melodic line with a triplet in the Alto part. The Tenor and Bass parts have a harmonic line with a triplet in the Bass part. The Tenor and Bass parts have a "DIV." (divisi) marking.

==

Musical score for "Days of Wine and Roses" featuring Soprano, Alto, Tenor, and Bass staves. The key signature is B-flat major (two flats) and the time signature is 4/4. The tempo/mood is marked *mp* (mezzo-piano). The lyrics are: "RUN A-WAY LIKE A CHILD AT PLAY". The Soprano and Alto parts have a melodic line. The Tenor and Bass parts have a harmonic line. The Tenor and Bass parts have a "DIV." (divisi) marking. The score ends with "ETC.".

DAYS OF WINE AND ROSES  
 Copyright © 1962 M. WITMARK & SONS  
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 Used by Permission of Warner Bros. Music.

Just as example number 259 resembled a string quartet in structure, this example resembles a voicing for a large string ensemble. The soprano and alto lines correspond to a section of violins (in two parts); the tenors and basses resemble violas and cellos.

For a really big sound, the choir could comprise twenty voices—six sopranos, six altos, four tenors, four basses (notice again how the division exactly matches that of a body of twenty strings)—but a satisfying and full sound can also be achieved with a group half this size—three sopranos, three altos, two tenors, two basses—especially when the vocal parts are overdubbed once, twice, or even three times. This process of multi-tracking voices is now the rule rather than the exception. As with strings, it adds body to the sound of a group of voices, giving it a warm glow.

Recorded example number 22 illustrates how this practice can add dimension to the sound of voices. Jackie and Roy sing an excerpt from "Summer Song" (CTI-6019). The passage is scored in four-part harmony—Jackie and Roy each sing two different lines. You'll hear this basic four-part harmony in the first part of this aural example. Then, in part two, they overdub each of these lines again, at least once, requiring the use of ten or even twelve tracks. Now listen to the difference. The voices now project much more warmth and substance—a very special sound.

Most commercial recorded music is scored for smaller vocal groups than the one illustrated in example number 260, usually three to six voices. With groups this small, the distinctions between the traditional categories of soprano, alto, tenor, and bass become blurred. The parts are usually written in two staves, labelled simply "girls" and "boys," both scored in the treble clef.

Most Professional recording singers are very flexible and are capable of adjusting their vocal quality to accommodate any musical style.

For most commercial recordings I restrict the vocal range to these limits (Ex. 262). Naturally, if your arrangement calls for a vocalist with unique qualities, you must inform the contractor well in advance of the recording session.

#### EX. 262

SOUNDS AS WRITTEN

GIRLS

SOUNDS AN OCTAVE LOWER

BOYS

~cr



The following examples illustrate various vocal group sounds used extensively in commercial recording.

Example number 263 is the sound made famous in the 1940's by groups like the Pied Pipers and the Modernaires. This voicing produces a quality very similar to that of a section of five saxophones voiced in close position with the lead melody doubled an octave lower.

### EX. 263

(CONCERT SKETCH-SOUNDS AS WRITTEN )

[ 2 GIRLS, 3 BOYS  
O\* ]  
[ 1 GIRL, 4 BOYS-CWITH 1 BOY IN FALSETTO ] \*

ETC.

I'll NEV-ER SMILE A - GAIN UN-riL I SMILE FOR YOU.

+ A VERY LIGHT SOUND - PROOUCED BY ELIMINATING ALL CHEST TONE, ALLOWING THE VOICE TO COME ONLY FROM THE THROAT AND HEAD- I'll NEVER SMILE AGAIIM

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Example number 264 illustrates the Four Freshmen sound of the 1950's. The combination of close and semi-open position voicings closely approximates the sound of a section of four trombones. The Hi-Lo's also used this sound as the basis of their style, but embellished it considerably with extensive chromaticism and cross-voicings.

### EX. 264

i SOUNDS AN OCTAVE LOWER )

[ 4 BOYS - TOP VOICE, SEMI-FALSETTO ]

SOME DAY WHEN I'M AW- F'LLY LOW WHEN THE WORLD IS COLD

I WILL FEEL A - GLOW JL > T THINK-ING OF- YOU AND THE WAY YOU LOOK- TO- NIGHT.

THE WAY YOU LOOK TONIGHT  
Copyright © 1936 by T. B. Haims Company, Santa Mónica, Calif.  
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In the 1960's the Beach Boys also adopted this basic sound, but added their own touches by simplifying the harmony, and by emphasizing the high falsetto lead.

EX. 265

{SOUNDS AS WRITTEN }

GOOD, 6000, GOÖÖL, GOOD VI-8RA-TIONS

Used by Permission, Irving Music

The Mamas and Papas style was uncomplicated yet effective (Ex. 266). The two unison lines create an open, happy sound—I use it quite often.

EX. 266

{SOUNDS AS WRITTEN }

UNIS-HARMONY

2 GIRLS

GA IN LAST MGHT AND YOU KNOW THAT f SHOLIO NT.

{SOUNDS AN OCTAVE LOWER }

2 BOYS

ur as - MELODY /-

I SAWHERA-CAIN LAST N/GHT AND YOU KNOW THAT / SHQULD - NT

P B

G.

7D STRNG HER A- LON I'S JUSTNOT RIGHT,IF / COULD-NT / WOULD NT.

B.

ÜÉü

ETC

I SAW HER AGAIN LAST NIGHT  
 By D. Doherty and J. Phillips.  
 Copyright © 1966 by American Broadcasting Music, me.  
 Used by Permission only. All Rights Reserved.

In the 1970's the Carpenters became very successful with this kind of sound.

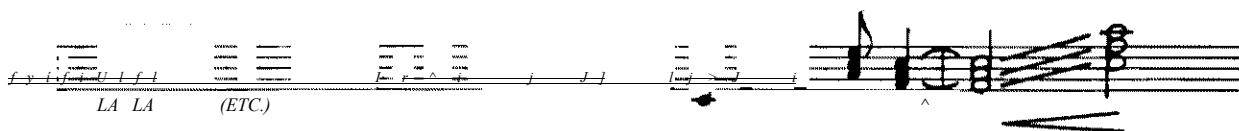
## EX. 267



Through multiple tracking, the top two lines are sung by a girl, the bottom two by a boy, very lightly with an airy sound, and overdubbed at least three times—a very useful recording sound.

"Soul" girl trios like the Supremes and the Raelettes use simple triads but achieve their individuality and excitement by adding funky inflections to the melodic phrasing.

## EX. 268



There are, of course, other prominent vocal groups—most importantly the Beatles, one of the best and most influential—whose styles are based on texture of individual voices rather than on voicing structure.

Voices can be combined in unison with various instruments to create original textures. The most famous example is Ray Conniff's bright sound—girls doubling unison trumpets, boys doubling trombones. Jackie and Roy have used instruments to double their vocal lines (flute with Jackie, tenor sax with Roy) for added body and vibrancy. This sound combination can be heard on their CTI album "A Wilder Alias." Give a listen.

## CHAPTER SIX: Melodic Considerations

As we have seen in Chapters Two, Three, and Four, specific combinations of instruments voiced in certain ways can give an arrangement individuality, sometimes even creating a recognizable style.

The various ways in which an arranger utilizes melodic motion can help to achieve the same end.

*The melodic lines an arranger gives an instrument or group of instruments should be indigenous to the character of that instrument or instruments.* A line scored for strings should not sound as if it could have just as easily been played by reeds or brass.<sup>1</sup>

Every instrumental group has its own distinctive character, and the sensitive arranger is aware of the various capabilities and shortcomings of each.

1. In music for acts or shows, the arranger is usually asked to write his score in just this way, with as much doubling as possible, in order for the arrangement to sound full even if several of the instruments were missing. This is called cross-cueing. This approach tends to give music a bland, impersonal sound, totally unsuitable for recording.

To illustrate, the following example, taken from a Hank Crawford album, was used as an introduction.

## EX. 269

CXV.12  
 MODERATO

VIOLINS: *pp* M S A N M Í S S S H I J 1 / I L U F

VIOLA: *p* 1 (8 p i y K U T *mf* r r r i = t

CELLS: *p* j á - *mf*

VIOLINS: *mp* LOCO! . a n s i ETC.

VIOLA: *mp* p g l Ê Ê *mf*

CELLS: *mp* y 4 *mf* *mp*

Can you imagine the same intro voiced for brass?—impossible. Voiced for reeds (two flutes, English horn, and three clarinets), it might sound fairly convincing, but by no means as effective as it is for strings.

The good arranger will adjust his melodic thinking to suit the ensemble he happens to be scoring for at the moment.

Two other important considerations in determining a melodic groove are: (1) *the character of the tune to be scored*, and (2) *the artist who will perform it*. These are almost always inseparable. Every recording artist tries to project his own individual personality, and selects his material accordingly.

When an arranger receives an assignment, he must first know the artist's style intimately. He must know what the artist is trying to say musically; what he has done in the past and which direction he plans to take with the current project. Once the arranger has fulfilled this requirement, he can consider the tune to be recorded.

Usually, an artist will record a song because it fits right into a musical pattern which he or she has established. Sometimes a situation will arise wherein the artist or the record producer may want to record a piece of material which, on first hearing, seems to be foreign to his style but contains elements that he hopes will suggest new possibilities untried before. Ray Charles' country and western albums illustrate this point perfectly. It is the arranger's job to work closely with the artist and producer to make the final product as natural sounding as possible.

Once the arranger knows the direction to be taken, he should let the tune "talk to him and tell him where it wants to go." That's the approach I take. Instead of trying to graft my personality onto a tune, I try to get inside it and let it lead the way, allowing my feelings to emerge through my reactions to the melodic possibilities inherent in the structure of the tune itself. Admittedly, this results in a less stylized approach, but in my opinion, a more natural one.

Listen to the tune as many times as is necessary with your artist in mind until you start getting ideas for your arrangement.

Your melody lines may be derived from a portion of the song itself. In recorded example number 23, you will hear the beginning of a Henry Mancini tune, "Moment to Moment" as recorded by Freddie Hubbard (CTI 6013). The intro is based solely on the initial two-note motive of the melody.

After becoming familiar with the song in question, you may begin to hear a recurrent figure, unrelated to the tune directly, but offsetting it somehow, which can be used for the introduction, interludes, or backgrounds. In recorded example number 24, "The Sun Died" by Hank Crawford (KUDU-06), this figure (Ex. 270) or a portion of it, was used in six separate places throughout the arrangement. Listen to it and see if you can locate each entrance. Notice how this recurrent strain unifies the score and helps to give it shape.

EX. 270



You don't always have to start at the beginning of an arrangement. Sometimes an idea will come from the end of a phrase which will later suggest an introduction or an ending.

Always try to keep something going which is interesting to the ear; not necessarily attention-getting (obviously, this would be unsuitable in a background passage, distracting the listener's attention from the featured artist who is usually center-stage), but projecting enough character to carry one bar into the next with as much flow as possible. There are various ways to do this.

Take another look at example number 269. The lead line is in the first violins. It is fairly static for a bar and a half consisting of only two repeated notes. This effect is somewhat modified by the addition of the sixth below and also by the dynamics. However, it still lacks enough motion to flow by itself; it needs some help. The *counter melody* in the violas lends the right amount of melodic interest needed to make the overall picture complete.

Moving an *inner voice* of a chord is a good way to provide interest and prevent a passage from becoming static (Ex. 271 and Ex. 272).

#### EX. 271

EX. 271 shows a musical score for Violins, Viola, and Cello. The Violins part features a static lead line with repeated notes, while the Viola and Cello parts provide a counter melody. The score is annotated with "niv." and "g" above the Violins staff, and "i" above the Viola staff. A bracketed annotation reads "[DIATONIC INNER MELODY WITHIN CHORD FRAMEWORK]". The Cello part is marked with "OIV." and "fi". The score concludes with "ETC.".

#### EX. 272

EX. 272 shows a musical score for 5 Saxophones, 2 Alts, 2 Tenors, and 1 Baritone. The score is annotated with "t CONCERT KEY)" and "5 SAXOPHONES". The 2 Alts part is marked with "2 ALTS" and "3". The 2 Tenors and 1 Baritone part is marked with "2 TENORS" and "1 BARTONE". The score includes a bracketed annotation: "CHROMATIC INNER MELODY CHANGES CHORD QUALITY". The bottom of the score is annotated with "DIATONIC INNER MELODY WITHIN CHORD FRAMEWORK". The score concludes with "RIT.".

This device must not be overdone—it should be used to provide relief from "goose-eggs" or "footballs" (whole notes and half notes).

Here is another example of melodic motion within a chord framework.

EX. 273

TAKEN FROM A PAUL DESMOND RECORDING

MOOREA BOSSA NOVA TEMPO

VLNS. *Vfl. L. DIV.*

VCL. *UNIS.*

GTR.

BS. *(SOUNDING AN OCTAVE LOWER)*

*mi pr i r m f T f r*

There are several things to point out here. The cellos play in unison to give the line more emphasis than if only one cello were playing it. Placing the line an octave below the violins further emphasizes this line. We are deliberately sacrificing overall ensemble balance in this passage in favor of melodic motion.

In the third and fourth bars the cellos change from half note to quarter note values in order to give extra push into the next phrase.

Compare this example with the following one; the same passage voiced "correctly"—without melodic movement in the cellos—is much less interesting to the ear.

EX. 274

VLNS. *DIV.*

VCL. *DIV.*

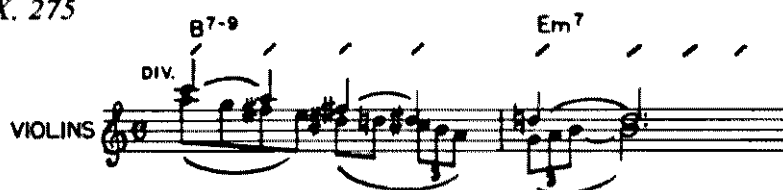
GTR.

BS.



Another way to add a little melodic motion which I especially like to use with strings is illustrated here.

## EX. 275



Instead of just voicing the violins in parallel descending thirds, we give some extra interest by using *passing tones* in the bottom line. Many times, by doing this in a given passage, you can provide enough interest to eliminate the need for an orchestrated chord, thereby saving that chord for emphasis in a later bar. This device also works well with reeds.

*Contrary motion*, especially between the lead voice and the bass line, can provide a subtle touch of melodic character. (See also Chapter Two, example number 47, measure 5.)

## EX. 276

(CONCERT SKETCH)

The devices illustrated in these examples are all aspects of counterpoint—a complete discussion of which could fill several volumes. I urge the student to be always aware of the opportunities for adding welcome vitality to his writing through the use of contrapuntal techniques.

An important melodic consideration when writing long-value note backgrounds is the *lead line* itself. Even in soft, subtle background passages, your lead line should have some character.

## EX. 277

(CONCERT SKETCH)

3 FLUGEL-HORNS  
mp  
E<sup>b</sup> Ma<sup>+</sup>  
D<sup>+</sup> 3 D<sup>+</sup> 3 -9 Ctr<sup>+</sup>  
F<sup>+</sup>m9 09

4 TROM-BONES  
mp  
r

FUGLHNS  
E Ma<sup>7</sup>  
E<sup>13</sup>  
E<sup>b</sup> Ma<sup>7</sup>

TBNS.

How much less interesting the same passage would be if the lead flugelhorn line were written this way.

## EX. 278

The arranger must be especially careful, however, to avoid having his background interfere in any way with the melodic motion of the solo line. In this example (Ex. 279), the unison violins are unsuccessfully attempting to echo the soloist. They shadow the melody too closely, however, resulting in an almost constant parallel motion which distorts the aural *focus*. (See Chapter One—Basics.)

## EX. 279

VOONS

SOLOIST

RHYTHM

*p*

*Cm j<sup>7</sup>*

*G/B*

*Am*

*F/O*

VLNS.

SOLOIST

RHY.

*p*

*F*

*D<sup>7</sup>*

*G<sup>7</sup> SUS 4*

*G<sup>7</sup>*

The following version of the same passage is, melodically and harmonically, much more satisfying (Ex. 280). Here, the background line touches down briefly on the solo melody notes at various points, but for the major part of the passage, the violins supply chordal tones not present in either the foreground solo line or the bass line, thereby "filling in" the chords and making the overall tonal picture much more complete than it was in example number 279.

## EX. 280

Example 280 is a musical score for three parts: VIOLINS, SOLOIST, and RHYTHM. The VIOLINS part is in treble clef with a key signature of one flat (B-flat) and a 3/4 time signature. It features a melody with triplets and slurs, starting with a piano (*p*) dynamic. The SOLOIST part is also in treble clef with a key signature of one flat and a 3/4 time signature, featuring a melody with triplets and slurs, starting with a piano (*p*) dynamic. The RHYTHM part is in bass clef with a key signature of one flat and a 3/4 time signature, featuring a bass line with triplets and slurs, starting with a piano (*p*) dynamic. Chordal textures are indicated by chords like CM7, SL B, Am, and Em, and a 'y' symbol.

Example 280 is a musical score for three parts: VIOLINS, SOLOIST, and RHYTHM. The VIOLINS part is in treble clef with a key signature of one flat (B-flat) and a 3/4 time signature. It features a melody with triplets and slurs, starting with a piano (*p*) dynamic. The SOLOIST part is also in treble clef with a key signature of one flat and a 3/4 time signature, featuring a melody with triplets and slurs, starting with a piano (*p*) dynamic. The RHYTHM part is in bass clef with a key signature of one flat and a 3/4 time signature, featuring a bass line with triplets and slurs, starting with a piano (*p*) dynamic. Chordal textures are indicated by chords like F, E~ D7, Q7SUS4, and G7, and a 'y' symbol.

It takes a good deal of sensitivity and experience to know when to move a line. Tempo, rhythmic complexity, and harmonic motion are factors which must be considered here. The best advice I can give to the young arranger is to listen to the work of successful writers and above all—concentrate on every bar.

The last and very possibly the most important aspect of melodic writing we will consider here is *voice leading*.

Good voice leading is *essential* to good arranging. Giving each individual part in your ensemble as meaningful and interesting a melodic line as possible will help to give your arrangement a steady, logical flow. Conversely, bad voice leading can give your writing an awkward, unnatural feeling. The average listener may not always be aware of the negative effect of bad voice leading, but you can be sure the musicians playing the arrangement will be aware of it—and their reaction to bad voice leading, especially when relaxed swing is called for, will be reflected in the performance. No other single factor in writing denotes a lack of professionalism as noticeably as does bad voice leading. You can get by with unusual lead lines, odd harmonies, even unorthodox forms; these can all be a matter of personal taste, but voice leading is either good or bad—no two ways about it. This is strictly a matter of *craft* which you must be aware of constantly in order for your arrangement to be performed successfully.

Whenever musicians discuss their favorite writers, someone is likely to say, "that guy's charts play themselves." In other words the arranger in question is so adept at voice leading, the musicians have no trouble at all getting the feel of the notes immediately. Consequently, they are able to forget about "making the notes" and are free to relax and just "blow."

The "daddy" of the voice leaders, of course, was Bach. His chorales, inventions, fugues, concerti—everything he wrote shows his mastery of voice leading. Bach followed very strict rules, a discussion of which is not within the scope of this book, but the student arranger would do well to familiarize himself with the framework within which Bach worked in order to get an idea of the basic foundation upon which all subsequent music rests.

Naturally, in modern writing, our restrictions are somewhat looser than Bach's because we normally use more complex harmony than he did, but the object is to be as true to your idiom as Bach was to his.

When you write an arrangement, try to give *every* musician as meaningful a line to play as you possibly can: not only the lead trumpet, lead alto, or first violins—but the fourth tenor, third trombone, the inner parts, too. To illustrate, here is a medium swing blues shout chorus voiced for a standard big band.

205

## EX. 281 cont'd. (2)

ROS.

AL. 1

AL. 2

TEN. 3

TEN. 4

BAR. 5

TPTS. 1

2

3

4

TBNS. 1

2

3

4

EL. GTR.

PNO.

BS.

DMS.

SOLO

FILL

Chord symbols:  $Gm^9$ ,  $F^{\#}o7$ ,  $F^{\#}$ ,  $C^{\#}7$ ,  $B^{\#}9$ ,  $B^{\#}9$ ,  $SUS 4$ ,  $Bb^{\#}9$ ,  $Gm^7$ ,  $C^{\#}7$ ,  $G$ ,  $F^{\#}o7$ ,  $Fm^7$ ,  $Gm^7$ ,  $Am^7$ ,  $SUS 4$ ,  $Bb^{\#}9$ ,  $Dm^9$

A. If the second trumpet needs a rest at this point in the arrangement, these two bars may be omitted with no adverse effect on the overall sound.

B. The fourth trombone lays out for one bar. Since this passage is to be repeated, he'll need a few beats to adjust his embouchure after the pedal Bb solo in bar twelve before rejoining the ensemble.

C. Here the baritone sax has a little descending line by himself in order to create a little motion—all other horns sustaining for three beats. This line also sets up the sax section soli two bars later.

D. The lead trumpet needs a rest once in a while, especially if the passage is fairly high in register. These two bars being unison, this will never be noticed by the listener. Always try to be aware of the physical demands of your writing. Be sure to give enough rests to those players who have especially demanding parts to play.

E. Note the separate sax lines in this bar. Sing or play each one to yourself and see if they feel natural to you. The third tenor part is a bit awkward on the third and fourth beats, but the demands of the chord pattern make this, in my opinion, the best solution to the problem. The chord on the upbeat of two is a *passing chord*. It will go by unnoticed by the listener because it falls on a weak beat and also because the tempo is fairly bright. Note also the *cross voicing* between the two tenors on beat three. Notice how much less natural the inner parts would be if the passage were voiced this way.

#### EX. 282 (CONCERT KEY)

5 SAXES

2 ALTOS

2 TENORS  
1 BARITONE

Those repeated notes are very awkward to play with a loose, relaxed swing feeling.

F. Here again, note the cross voicing in the third and fourth trumpets. This is done to avoid having each trumpet play the same note twice in rapid succession. In this instance, it would have felt very stiff and unnatural to play.

G. The first trombone, who has been playing in a fairly high register, can take a short rest.

H. See D and G above.



I. This eighth note is omitted in order to avoid this line.

## EX. 283



The repeated C would have made the passage awkward to play.

Some arrangers play their lines on the piano or another instrument to make sure they feel natural before committing them to paper. Others sing a lot. Use any way that suits you to help yourself to create meaningful voice leading. It is very important.

From time to time, you'll be confronted with a situation where you must make a choice between the best possible voice leading and the best chord spacing. There is no set rule for this situation, of course; it's mostly a matter of feel. Generally speaking, the faster the tempo, the more advisable it is to opt for the best voice leading, especially in a jazz arrangement, as we did in example number 281.

Sometimes your arrangement may need a sudden harmonic lift for dramatic effect; in such a situation it is perfectly all right to sacrifice smooth voice leading temporarily.

## EX. 284

Violins: DIV. *p* *f* *mp* \* BIG LEAP

VKDU: *p* *f* *mp* \* BIG LEAP NON-TREMOLO

Violoncello: DIV. *p* *f* *mp* \* BIG LEAP NON-TREMOLO

Harp: *p* *f* *mp* SOLO

Piano: CM<sup>9</sup> / Dm / Em / Fm\* / E<sup>7-9</sup> / A<sup>13-9</sup> / Eb<sup>7-9</sup> / Dm

Bass: HZZ. *p* *f* *mp* *T* *1* *P*

The disconnected leaps in the violas and cellos are perfectly valid. This passage is very natural for strings to play-especially since they attack the downbeat of bar three *forte* with *tremolo*. This will mask the irregular voice leading and also cover any slight imperfection in intonation. In the fourth bar, the three-way divisi in the violins leading to a pure unison may seem strange on paper, but it sounds natural emerging from the tension of the preceding bar. The large downward skip in the cellos is also permissible because of the slight rest, the decrease in volume, and especially because of the obvious change in tone color.

Sometimes, you may be working in an unusually chromatic idiom. A perfect example is the Hi-Lo's vocal group of a few years ago. Highly complex harmonies formed the basis of their style. In such a situation, proper voice leading generally tends to go out the window in favor of exotic harmonic treatment.

The examples discussed in this chapter should help to make the arranger aware of the various ways in which melody can be used to give his scores interest and individuality.

## CHAPTER SEVEN: The Importance of the Lyric

When accompanying a vocalist, the arranger must consider, in addition to the instrumental problems already discussed, the added factor of the lyric. The words of a song can have a decided effect on the manner in which an arrangement is scored.

There are some arrangers-many fine ones, in fact-who have been very successful in writing for instrumental combinations, but for some reason, have not been able to adjust to the demands which a song lyric presents.

An arrangement accompanying a vocalist should at all times underline and support the words. To be successful, a song must be understood, at least subconsciously (in some modern lyrics, it's not the sense of the words, but the feeling that matters), and it is the arranger's responsibility to make sure this objective is achieved.

The background should in no way compete with the singer for the listener's attention. The tempo, volume, and general style of an arrangement must be dictated by the vocalist's capabilities, and compensations made for his or her shortcomings. For instance, if a passage contains notes which lie in a low, weak vocal register, the arranger should not have four trumpets blaring in unison at the same time. This may sound ridiculously obvious, but I have heard many examples of just such a lack of sensitivity by arrangers who should have known better.

In order to create a good vocal accompaniment, an arranger must be extremely flexible. He must develop the ability to support and inspire a vocalist so he or she feels comfortable and eager to communicate with an audience.

The really musically astute singers, like Peggy Lee, Roberta Flack or Mel Tormé can help an arranger to accomplish this by giving him specific suggestions regarding the background which they feel will help to project the message of the lyric properly.

Most singers, however, are not as well schooled as musicians, and consequently are not able to discuss the problems of an arrangement in musical terms. The arranger is apt to hear comments such as "it's too dark and gloomy in that passage." This can mean the bass is overbalanced, the cellos are playing in a low register for too long a time, the sound of trombones is offensive, a minor chord pattern is disturbing, or any one of a score of other things. The arranger must be able to decipher this "code language" and translate it into meaningful instructions to the orchestra in order to solve the problem.

Once in a while, a singing star may request changes in an arrangement simply in order to assert his authority. One such example, famous among arrangers, involved a very popular vocalist who arbitrarily demanded changes in every arrangement. Finally, the arranger realized the situation and came up with a perfect solution. He deliberately over-arranged every score, including unnecessary fills, thick voicings, etc., which, in a normal situation, he would have left out. On the next record session, as the star went on his usual "ego trip," demanding changes for a variety of imagined reasons, the arranger patiently agreed and started taking out all the clutter he didn't want in the score in the first place, until the singer was satisfied. They were both happy—for different reasons.

Perfect communication between singer and arranger is a rare thing. When it does happen, it can produce excellent musical results. Good examples of such teamwork between singer and arranger are—the great work Nelson Riddle has done for Frank Sinatra; the tight, well-crafted "tentet" scores Marty Paich did for Mel Tormé in the 1950's; and Peter Matz's sympathetic backgrounds for Barbra Streisand. You'll notice these arrangers seem to fall into a general category. None of them has risen to prominence primarily by doing "his own thing." Their major contribution to the recording field has been in bringing out the best in others, and they all do it exceedingly well.

Before you begin to score a vocal accompaniment, ask yourself some questions:

(1) What is the general tone of the song? Is it serious, sad, comic, sensual, religious? Or does it have no especially marked character at all?

(2) How is the artist going to interpret this lyric? Before scoring, you and the vocalist must be in complete agreement on interpretation. It may be decided to "go with" the song. In other words, if the song has a special character, the artist will emphasize this feeling in his or her performance. Sometimes the singer will deliberately "go against" the song. A perfect example of this approach is Barbra Streisand's record of "Happy Days Are Here Again." A lively song generally sung only at political conventions was brilliantly changed into a slow, emotionally charged performance which gave the lyric a subtly ironic meaning.

(3) Does the lyric contain enough imagery to allow for orchestral support through special colors and effects, or would this approach overpower the words?

(4) If the song is well known, how can I make my interpretation original without having it sound overdone or forced?

(5) Are there extra-musical factors to be considered? For instance, the scoring of a Christmas song calls for a certain amount of attention to tradition if it is to sound appropriate.

(6) Is the song weak in some respect—melody, harmony, lyric? What can I do to overcome these faults?

(7) What sort of orchestra should I use to best underline the message the song is trying to communicate? If I find myself forced to use an instrumental combination which I feel is not the most appropriate one for the song, how can I overcome this disadvantage without it being apparent to the listener?

Let's examine some scored passages in which the influence of the lyric is obviously very important.

The first example focuses on a section of an arrangement done for vocalist Lon Ritchie of a song called 'The Smile You Wear.' The song itself doesn't project any special message—just a nice love song sung by a guy to a girl telling of her endearing traits, etc.; the lyric does, however, contain several words which can be used to trigger colorful orchestral devices. These provide interest points which help to move the song along with the proper momentum.

## EX. 285

(CONDENSED CONCERT SCORE)

*RUBATO*

PIANO SOLO F M L ^ - 1 B b 9 s u s 4 B b 9 Gm7 G<sup>9</sup> G" Cm7 F9

*MOLTO* *RUBATO*  
E m » E b 13

VOICELIST ENTERS-ISTILL RUBATO)

VOICE *p* THE SMILE YOU WEAR I AM EN CHAN-TED BY THE SMILE YOU WEAR

PIANO D9 (AD UB) F^m7 Fm\* Em7 A» «S 4 A9+5 F^m7 F®

1 2 3

VOICE THE MO-MENT YOU WALK IN A SYM-PHO-NY IN- SIDE ME BE-

PIANO E M 7 F C # 7 F # r r B 7 :| B 7 " 9 E m 9 E \* > 9

4 5 6

*TEMPO*

VOICE GINS. THE

F NO oeoē no vi> FR. HN. SOLO

OROL TUTTI AO LIB. (TUNE UP, WARM-UPS, RUNS, ETC.) HARP RUN (D SCALE) -i STRINGS

PERC. STICK ON MUSIC STAND (ONCUE)m BA rizz

7 8 9 10

Used by Permission, Lon Ritchie

The first phrase ends with the words "a symphony inside me begins." We happened to be in the key of D, so it seemed natural to have the oboe "sound his A" exactly as he does before any symphonic concert begins, and let the orchestra tune up and warm up just as if they were about to play a symphony. They are abruptly cut off by the percussionist imitating a conductor's baton calling for attention.

Admittedly, this kind of effect is a bit tongue-in-cheek, but it worked in this case for two reasons: First, the song itself was light enough in character to allow for it; had we been dealing with a "Gloomy Sunday" or "Stormy Weather," it would have been completely out of place. Second, up to the point where the orchestra "tunes up" (bar seven), the only instrument heard was the piano. Had we introduced other instruments along with the piano at letter (A), the "tune up" would have been pointless.

Sometimes, an effect of this kind will look great on the score, but fall flat on its face in the studio. Had this occurred, I could have easily omitted bar seven and the first half of bar eight and gone right to the horn pickup into tempo.

It's a good idea to always be ready to adjust your score in the studio, especially when you've written special effects of this kind, which may or may not prove to be successful.

Also worth noting, in bar ten, is the cue I provided for the vocalist's re-entry. The last French horn F natural gives the vocalist an opportunity to hear the first note of his next phrase. This particular example has a fairly simple harmonic background but you will write, from time to time, scores wherein the harmonic complexity can make it difficult for the vocalist to pick out his note. This kind of orchestral cue really helps in such cases, saving time and embarrassment.

Let's continue a little further with this arrangement (Ex. 286). The arrangement is now settled into a light bossa nova rhythm groove. In bar 13, the words "a summer's day" call for a little coloristic accent. My choice was a light, ascending flute run ending in a triad. This provided just enough interest to take up the slack (two beats +) left by the voice holding on the A, and the flute sound itself is suggestive of birds and breezes—light and "summery."

In bar 15, the words "willows gently sway" allowed me to create a little dynamic interest by sweeping the strings up momentarily, then back down again—just a little suggestion of willows swaying, without overdoing it.

In bar 16 the word "carousel" would ordinarily provide a chance to add orchestral color, but in this case we have to pass it up—the word goes by too fast. Had I added a few bell notes or some other carousel-type color here, it would have sounded out of place and overdone. Also, this is followed closely by the word "prayer" in bar 17. Inasmuch as this represents the end of the first long section of the chorus, and is being held for six beats, it makes much better sense to use this as a "color" word. I tried to subtly underline the word with a religious connotation. The chime note, the three pure descending triads, and the hollow sound of the French horns all contributed to this effect.

## EX. 286

**(B) LIGHT, BOSSA NOVA FEEL**

**VOCAL**

SMILE YOU WEAR — IS THE QUIN-TESS-ENCE OF A SUM- MER'S DAY A COUN-TRY-SIDE WHERE WIL-LOWS

**FLUTE-SOLO** *p*

**STRINGS**

**DRUMS** (LIGHT BRUSHES) ETC.

**BASS, GUITAR, PIANO**

D Ma7 Em9 A9 SUS 4 F#m7 SUS 4 B9 B9 Em9 A9 SUS 4 A7 G

11 12 13 14

**VOCAL**

GENT-LY SWAY A CAR-OU-SÉL, A PRAYE.

**3 HORNS**

**CHIME**

**SOLI**

**BASS-ARCO**

**PIZZ.**

F#m7 Err,9 Ebs 1 p - t f d y p

•5 i6 i7 te

Used by Permission, Lon Ritchie

Sometimes, a very simple effect will underline a lyric perfectly. As an example, in an arrangement I did recently of "Midnight Sun," the lyric at one point says "suddenly the sky turned pale." In the background, the string section was sustaining a chord held over from the previous bar. To reinforce the lyric, I simply had the strings change their normally warm sound by indicating *no vibrato and ponticello* (played close to the bridge), making the sound cold and pale. The effect was very subtle, but it provided just the right amount of shading I needed at that point.

A short quote from a well-known popular song can be a perfectly good device for underlining a word. I've used the first phrase of Ralph Burns' great m<sup>^</sup>Indy "Early Autumn" to emphasize the word "autumn" in a lyric; there are a good many "rain" songs from which you can draw a quote, etc. As long as you don't become too obvious, this device can work in certain situations, but *never, never* more than once in the same arrangement.

I have also used quotations from classical music when the quote reinforced the mood of the song I was scoring. As an example, the song "Too Long at the Fair" has been arranged many times with colors suggesting a carousel or carnival; it's a very obvious idea—in fact, a little too obvious. Recently, when presented the assignment of arranging this tune, I tried to create a background which would still project the general impression of a carnival or fair, but in an original way. I happened to remember the "Valse" section of Stravinsky's *Petrouchka*. The plaintive trumpet melody in 3/4 time, with its simple oom-pah-pah accompaniment was exactly what I was looking for. I used the quote in the introduction, as a background under the first section of the main melodic strain, and as a fade ending. It worked very well. In other arrangements, I have combined the Jefferson Airplane tune, "White Rabbit" with Ravel's *Bolero*, Ellington's "Take the A Train" with Villa Lobos' "Little Train of the Caipira," and "Lazy Afternoon" with Debussy's "Prelude to the Afternoon of a Faun," which was recorded by Jackie & Roy (CTI 6091).

This device will only work well if the classical piece from which you quote is fairly well-known, in order for its imagery to effectively reinforce the lyric of the popular tune with which it is combined.

You must be sure of the tone and meaning of the words of a song before attempting these quotation devices. Used incorrectly, or insensitively, they can become a joke.

There are times when you will want to insert a musical joke intentionally. If a song is very light, and the vocalist has the style to bring it off, a deliberate comic effect can make an arrangement sparkle.



As an example, some time ago, I did an arrangement for Carmen McCrae on the old standard "Life Is Just A Bowl of Cherries." It was done in a light, swinging tempo and Carmen was relaxed and having fun, singing the tune in her own wry way, gently mocking the words. The first chorus was fairly straight-ahead, with a gradual increase in volume into the second chorus.

At that point Carmen sang example number 287.

EX. 287

L THE TUNE IS SLK3HTLY ALTÈRÈQ, AS CARMEN M«CRAE SANG IT.)

VOICE

ORCH.

TBWS

TYMR m

VOICE

ORCH.

FR.HNS.,HR,BELL TREE

ETC. (WHOLE TONI CLUSTERS)

ETC.

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Here are two musical jokes—one right after the other. After the word, "Serious," I used the opening motive from Beethoven's *Fifth Symphony*, played by four trombones and timpani—what could be more serious than that? The next musical joke begins with the word "mysterious." This is underlined by four French horns voiced in a whole tone cluster running up and down a whole tone scale accompanied by harp and bell tree glissandos—two very obviously overdone effects used intentionally. This was the only place in the whole arrangement which allowed for this type of comic treatment, but it provided a welcome lift which carried the rest of the chart along with a nice light-hearted feeling.

The ability to effectively poke fun at a lyric is a unique talent. There are a few writers who do it especially well. Billy May is one. His "Sorta-May" and "Sorta-Dixie" albums are classics. Frank Comstock is another writer with this talent. He did some albums for the Hi-Lo's a few years ago which were just brilliant in their complete mastery of musical humor.

The underlining of a lyric can also be achieved in a more general way. You may be called upon to score a tune which has a definite "period" flavor. As an example, the old Elizabethan folk song "Greensleeves" would normally call for "old-fashioned" tone colors—recorders, harpsichord, etc., unless you decided to deliberately go "against" the inherent nature of the tune. In a song of this kind, there is no strong imagery, no individual words to "catch" (reinforce); instead, the lyric calls for an overall coloristic instrumental treatment consistent with the medieval tone of the song.

A period flavor can also be used effectively to frame a modern song. I did an album called "Road Song" for the late Wes Montgomery which included tunes like the Beatles' "Yesterday," "Fly Me To The Moon," and "Scarborough Fair"—all done with authentic baroque sounds (harpichord, piccolo trumpet, recorders, etc.). The combination worked well because the plaintive tone and harmonic content of the songs were conducive to such a treatment.

The words of a song can suggest ideas for introductions and interludes—places where no words are being sung. This is usually the case with a "mood" song. "Autumn Leaves," "Lovely Town," and "September Song" are good examples of mood songs. Here is the lyric of a song called "Leaf in the Wind."

*Leaf in the wind, glowing red in autumn,  
high on the bough of the silent tree,  
where is the spell that the frost has broken  
when leaves were green, and she loved me?  
Now in the chill of early autumn  
I still can feel her July embrace—and the  
sun on the leaf makes my heart remember  
her lovely face—time can't erase—  
Leaf in the wind, like my heart, you're cold now.  
Gone from the air is the summer thrill of  
arms that were soft and so warm around  
me, and lips that opened up heaven's door,  
what do I have in store?—  
Why must love fly away like a Leaf In the Wind?*

The primary intent of this lyric is the creation of a lonely autumnal mood. In my arrangement of this song, I wanted to suggest through orchestral color the autumn wind itself—a swirling trembling combination of sounds which would properly set the stage for the vocalist.

Here is the introduction and first twelve bars scored for full orchestra.

## EX. 288

Score for full orchestra, measures 1 through 12. The score is divided into four measures, each marked with a circled letter: (A), (R), (C), and (D). The instruments and parts are as follows:

- 12 VLN.**: Div. a3, Trem. (Tremolo), Div. a4, mp, mf, p, mf.
- 4 VCL.**: Div. a4, mp, mf, p, mf.
- HP.**: Gb, mf, C#G#4, mf.
- FLT.**: mf, mf.
- CLAR.**: p, mf, p, mf.
- BS. CLAR.**: p, mf, p, mf.
- HNS.**: 1. OPEN-SOLO, mp, Poco, mf. 2. MUTED, (BUZZ), mf, mp, p.
- VOICE**: -
- PERC.**: VIBES-SLOW VIB., p, VIBES, p.
- GAS. GTR.**: (NO AMP.), Dma6, p, Cl 37, p.
- KYBD.**: ROCKSICORD BOUNCY SOUND (TREMOLO), mp, mf, mp, mf.
- BS.**: ARCO, mp, mf, mp, mf.
- DRS.**: BRUSHES, p, mf, 2/4.

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## EX. 288 cont d. (2)

TREM. \_\_\_\_\_

The musical score is for a large ensemble and includes the following parts and markings:

- VLNS.** (Violins): Marked with circled letters A, B, C, D, A, B and dynamics *p*, *mp*.
- VCL.** (Viola): Marked with circled letters A, B and dynamics *p*, *mp*.
- HP.** (Harp): Includes a section marked "SOLI W/VIBES".
- FL.** (Flute): Marked with circled letters A, B and dynamics *p*, *mp*.
- CLAR.** (Clarinet): Marked with circled letters A, B and dynamics *p*, *mp*.
- BS. CLAR.** (Bass Clarinet): Marked with circled letters A, B and dynamics *p*, *mp*.
- HNS.** (Horns): Includes a section marked "DIE OUT".
- VOICE**: Lyrics include "LEAF IN THE WIND", "GLOWING RED IN", "AUT - UMN", "HIGH ON THE BOUGH", and "OF THE SI-LENT".
- PERC.** (Percussion): Includes a section marked "BELLS & VIBES (SOLI W/HARP)" and "(STILL VIBES)".
- CLGTR.** (Clarinets): Marked with circled letters A, B, C, D, A, B and dynamics *p*, *mp*.
- KYBD.** (Keyboard): Marked with circled letters A, B and dynamics *p*, *mp*.
- RS.** (Reeds): Marked with circled letters A, B, C, D, A, B and dynamics *p*, *mp*.
- DRS.** (Drums): Marked with circled letters A, B and dynamics *p*, *mp*.

The score features various musical notations including dynamics (*p*, *mp*, *pp*), articulation marks, and a "TREM." (tremolo) line at the top right.

\*. THIS NOTATION IS COMMONLY USED AS A SHORT CUT TO SIGNIFY THAT THE MEASURE REFERRED TO IN THE CIRCLE IS INSERTED IN THE MEASURE DESIGNATED. COL IS USED AS AN ABBREVIATION OF COME SOPRA, AN ITALIAN TERM, WHICH MEANS AS ABOVE, OR THE EXACT DUPLICATION OF.

## EX. 288 cont'd. (3)

(TEMPO FEEL)

ETC.

TREM. NO TREM. (TEMPO FEEL) PIVA 2 GL.

VLNS. VCL. HP. FL. CLAR. BS. CLAR. HNS. VOICE PERC. GTR. KYE J. BS. DRS.

(LOGO) SOLO C# F# G# Bm Eb F# Bb Eb

TO CLAR. SOLI 3-7 LEAD 3-7 2 TACET BLEND w/CLARS. 2. 3-7

(STILL MUTED) TREE BILLS WHERE IS THE SPELL THAT THE FROST HAS BROKEN WHEN LEAVES WERE VIBES

SLOW C#7-9 F#m7 Eb9 D9 sus4 D7-9 Gma9 Gm6 C13

PIZZ. 3-9 GL. OTHER CYMBAL (NOT HI-HAT) LET RING CELESTE

Several factors contribute to the desired overall effect. The rising and falling tremolo in the violins, the gentle harp glissandos, the flute runs, the open voicing for horns and clarinets, the delicate reverberation of the rock-sichord, and the cymbal swishes are all pieces in the impressionistic aural mosaic.

Another example of a musical idea being inspired by the lyric of a song can be heard in recorded example number 25—"What Do You Think of the World Now?" by Hubert Laws from his album "Morning Star" (CTI 6022). The politically oriented message of the song suggested the use of "America the Beautiful" and "America" (distorted with dissonances in the manner of Charles Ives) as an introduction, interlude, and ending, to offset the rather gentle melody of the song itself. The deliberate contrast between the two elements gave the arrangement a pronounced ironic tone.

These, then, are some of the ways in which the lyric of a song can suggest to the arranger ideas which can give his score dramatic emphasis.

When dealing with a lyric, be sure you understand its inherent character. Let it tell you its message and then decide which devices would best serve to underline this message, and communicate it to the listener.

## CHAPTER EIGHT: The Recording Studio

From the preceding chapters, the reader will, hopefully, have gained some insight into the solutions of musical problems that confront the recording arranger. When the last note of a score is penciled in, however, the recording arranger's job is only half finished. He must then deal with an electronic animal, which, if handled properly, can enhance his score and bring it to life, or, if handled improperly, reduce it to an incoherent mess—the recording studio. Because some of the terminology may be unfamiliar, the glossary at the end of the chapter should prove helpful.<sup>1</sup>

A recording studio is only as good as the engineer who runs it. A creative engineer, sympathetic to the musical goals of an arranger and his score, can use his knowledge and experience to ensure the fulfillment of these goals. The lines of communication must always be open between the arranger and the engineer.

The arranger must be sure the engineer is given, well in advance of the recording session, all the information he needs to set up his equipment properly: the exact instrumentation (the engineer will use different microphones for different kinds of instrumental sounds), the manner in which the instruments are to be combined (brass and reeds separate? What kind of string sound?), the number of tracks<sup>G</sup> necessary for the finished recording (will any of the elements be overdubbed?<sup>02</sup> Does the arranger need any tracks left open for possible experimentation at a later time?), will the entire ensemble be recorded simultaneously (necessitating maximum physical separation<sup>GJ</sup> of elements) or in layers, etc. All these factors are very important and must be considered so the engineer is prepared to give the arranger as much help as he can.

1. Terms that may be unfamiliar are followed by the letter *G* and a number; these correspond to a number in the Glossary, explaining the term.

To illustrate the mechanical procedures involved in the recording of an arrangement, I'll concoct a hypothetical score and describe each step of a normal recording session.

Let's say I've written an arrangement featuring an instrumental soloist—he will be the important focal point of the score. The producer wants this particular tune to "stretch out" and be fairly adventurous, so I'll use a background orchestra consisting of a rhythm section (bass, drums, piano, electric guitar, percussion), a large body of strings (twelve violins, four cellos, one harp), three woodwinds (doubling on various instruments), six brass (two trumpets, two French horns, two trombone^), and three female voices. This would be quite a large and varied combination, one which would be used only for very ambitious projects, as, for instance, Grover Washington, Jr.'s "Soul Box" album (KUX 1213), arranged so beautifully by Bob James.

First, we'll determine the number of tracks we'll need for this recording. Sixteen track is the standard in today's studios, so we'll use that as the basis for our discussion.

Naturally, the soloist will need his own track. Each of the rhythm section players will need a separate track.<sup>2</sup> This insures maximum separation for a good clean sound, and also enables the engineer to adjust the various components of the rhythm section independently in the remix session.<sup>4</sup> If the rhythm section is recorded simultaneously on a single track, as is sometimes done in two or four-track recording, the blend between the instruments can not be adjusted later—what you hear is what you get. This attention to the sound of each component of the foundation of a record—the rhythm section—is essential.

We have now used up six tracks.

The string section will be divided into two groups—the violins on one track, the cellos on another. The separation of these two units between left and right stereo channels creates an illusion of fullness, and also permits the engineer to control each element separately in the remix session. To further enhance the string sound, we are going to have the string players overdub<sup>3</sup> their parts, so the string section needs a total of four tracks. The harp is sometimes recorded together with the violins, but I am against this practice; it tends to submerge the harp. I prefer to record it on its own separate track.

We have now occupied eleven of our sixteen tracks.

1. Sometimes more than one track is allotted for various rhythm section instruments. For instance, the drums may be divided between two tracks—cymbals and snare on one, bass drum on another. For stereo effects, the high and low ends of a piano may be put on separate tracks. Any electric instrument (Fender bass, guitar, etc.) can be simultaneously recorded "direct" (by taking the signal directly from the electronic head of the instrument through the recording console) and "live" (by placing a mike in front of an amplifier) and placed on two separate tracks in order to achieve a special sound which combines the two resulting textures.
3. Throughout this book, we have used this term loosely, as it is used in actual practice. The proper term in most cases is sel-sync (65). For a clarification of the various kinds of "overdubbing" please refer to the Glossary at the end of this chapter.



The woodwinds, in my hypothetical score, will usually be voiced as a homogenous unit, playing flutes most of the time; they'll need one track.

The brass section won't be overdubbing their parts in this arrangement; they'll also need one track.

Our total of designated tracks is now thirteen.

The voices will be overdubbed, so they will need two tracks.

We have only one track left. We'll keep this extra track in mind—it may come in handy later. The soloist may feel his performance was adequate, but could perhaps be improved upon. In this case, he can retain his original track without erasing it, and attempt a new performance on the remaining open track. When he finally decides which of the two performances is the more successful, the unnecessary track can then be erased.

The open track can, if necessary, also be used to create room for additional elements through the technique known as "bouncing,"<sup>Gd</sup> a procedure which is fairly common.

The engineer, having been given all this information, begins to make decisions which will successfully transmit the musical intentions of the score into an aural reality.

As we've seen, an arranger, by using certain voicings, can create a recognizable musical style. An engineer, too, can create a style of recording which can make a substantial contribution to the success of a recording. Choice of microphones and their placement, separation of elements, relationships between the elements, manipulation of acoustics, sensitive use of echo<sup>G^</sup> etc.—all these factors combined with knowledge and love of music and a desire to enhance the recorded sound of music (instead of trying to make music conform to a preconceived idea of recorded sound) can project an engineer's individuality. Some exceptional engineers go on to become successful record producers.

Some arrangers, performers, and even some engineers prefer to record all the musical elements simultaneously in order to achieve a feeling of spontaneity—almost like capturing on record a live concert performance. While this is certainly a valid outlook musically, it does present certain physical problems which can be difficult to overcome when striving to achieve the best possible recorded sound. It is impossible to prevent some degree of leakage<sup>Gs</sup> from one instrumental sound into another in this kind of situation. Too much leakage can disturb the aural clarity of a recording.

A great deal of contemporary recording is done in layers—each separate element added independently, usually in separate recording sessions. For instance, on the first session, the soloist and the rhythm section will record their parts. Sometimes, the soloist is isolated from the rhythm—he plays in a soundproof booth; he and the rhythm can hear each other through earphones<sup>G9</sup>. In fact, through earphones, recording musicians can hear each other much more clearly than if they were side-by-side—thus, no cohesion or excitement is sacrificed.

The drummer is also often isolated from the other musicians, so the sound of his drum set (especially the cymbals) will not "leak" into their microphones. An especially quiet or intiraate instrument, like a classical guitar, is also usually recorded in a booth.

Once the artist and producer are happy with a given performance, the basic layer of the recording is complete. The engineer indicates on his work sheet that a specific "take"<sup>Gi0</sup> has been selected for use and will, at a later date, be "sweetened" (embellished with additional musical elements).

When I do a vocal accompaniment arrangement, I usually plan the entire score as a complete unified entity. When scoring for a jazz instrumentalist, however, I usually sketch a general outline for the soloist and rhythm section, indicating form, chord changes, and any important "hit" points without filling in the backgrounds. This allows the musicians freedom to experiment and change any aspect of the chart which may be uncomfortable or confining.

When the basic track is finished, I then take the tape and create my background according to the mood which has been established. This method of operation, I feel, helps to create a natural sounding record where the soloist and background seem to flow into each other in a mutually complimentary way.

The background elements (strings, woodwinds, brass, vocals) can be added in any order, usually on separate recording sessions. The musicians or singers wear earphones through which they hear the basic rhythm track while they add their own contributions to the record.

Occasionally, it becomes necessary to "punch in"<sup>Gi1</sup> an instrumental sound—one which has, perhaps, been "wild-tracked"<sup>^72</sup>. If, for instance, the featured soloist has a long rest, that unused portion of his track can be used by another element.

Once all the elements have been recorded, they are then ready to be balanced and mixed together in proper perspective. The delicate operation of mixing is a crucial step in the creation of a record. It is directly related to one of the basics we discussed in Chapter One-Focus. Just as it is necessary for the recording arranger to understand this principle when he constructs a chart, it is equally necessary for the engineer to understand it when he mixes it. Because the focus of an arrangement is constantly shifting, an arranger must help the engineer during a mix in order to correlate the chart's musical demands and the necessary aural considerations, which, when properly combined, create a successful finished recording.

At the mix session, the engineer, producer, arranger, and usually the featured artist are present. (Sometimes, assorted wives, girlfriends, managers, children, dogs, and other important people also are present, each of whom has a different opinion on how to make the record a hit.)

Some engineers set up the board<sup>c,j</sup> —(prepare the console)—by establishing a definite level<sup>c74</sup> for each element and maintaining those levels with minimum variation during the course of a mix—a kind of "set it and forget it" approach. Others like to "ride the pots"<sup>c7-5</sup>—(vary the volume controls)—radically, either to temporarily emphasize a particular element or to compensate for a weakness in the performance. The JS, a specific instrumental line can be raised above its normal level, or an undesirable group of notes can be "ducked" (dialed out).

The engineer also adds various degrees of echo and equalization<sup>G76</sup> to all the recorded elements to restore the ambience<sup>G77</sup> which can become lost in "dry"<sup>G78</sup> or "dead" recording studios.

The elements are separated into "left," "right," and "center" channels for stereo effects. The "center" is really a ghost channel—an impression created by spreading certain musical elements between the left and right speakers. In a mix room there will usually be three speakers, but only the left and right ones project any sound.

A skilled arranger can make use of the directional aspects of stereo and quad within his score. If, before he begins to write, he confers with the engineer to determine the speaker from which each instrument will emanate, he can create statement and answer effects which can be interesting if they are musically valid and not included only for their novelty value.

There are special techniques which can be employed during a mix to create unusual aural effects; phasing<sup>G79</sup> tape delay<sup>G20</sup> different kinds of fades<sup>G27</sup>, etc.—all very useful if employed with discretion and good taste.

After a few trial mixes, during which various refinements are made, a satisfactory final mix is achieved. The original raw, unbalanced tape has now been properly balanced and transferred to a second generation tape. This becomes the final master tape and is given a control number. A "dub" or test record is cut from this tape to check the quality of disc sound as compared to the tape sound. If no changes are necessary, and the dub is approved, the electronic signals on the master tape are transferred and cut into an acetate master which is then processed into a metal disc, which in turn, is used to stamp out as many copies as are required.

New hardware and methods are constantly being invented to simplify the mechanical procedures of recording and to improve the sound of phonograph records; noise suppressors, for instance, are commonly used now, computerized mixing consoles are almost here, new types of microphones are always being tested.

I strongly advise the aspiring recording arranger to try to gain as much first-hand knowledge of the inner workings of a recording studio as he possibly can. Visit recording sessions whenever possible; keep your eyes and ears open—ask questions. The greatest chart in the world can sound like mud if it isn't recorded properly.

## GLOSSARY TO CHAPTER EIGHT

1. **TRACK** Recording machines are constructed in various sizes and equipped with different kinds of head assemblies, encompassing one (monaural), two, four, eight, twelve, sixteen, twenty-four, or thirty-two separate recording heads. Each of these magnetic heads represents a separate "track" which is separated from its neighboring tracks by a small gap. When the recording machine is in the record mode, each activated head transfers an electronic signal to that portion of the tape which passes directly under it. Sixteen track is the standard for most contemporary recording.

The term "track" is also used to refer to individual "cuts" or "bands" on a disc recording.

2. **OVERDUB** The word "overdub" is a kind of generic term used to describe different kinds of recording operations whose ultimate goal is the superimposition of two or more elements, similar or dissimilar. True overdubbing is a recording procedure in which a recorded element is played back while a second element (or perhaps the same one over again—an instrumental or vocal group) is then recorded *together with it* on a separate recording machine, coupling the two. Both sound sources are ultimately locked together on one track.

This procedure is generally employed when the available tracks are limited (eight tracks or less). There are two disadvantages to overdubbing: (1) The second stage requires a second recording machine and a second generation in the recording process—recording a playback instead of a live sound. This can create tape hiss. (2) The two elements are locked together—they cannot be adjusted individually in the remix session. This is a "sound-on-sound" process.

A related mechanical procedure usually incorrectly referred to as "verdubbing" is *sel-sync* (selective synchronization); it is used instead of overdubbing whenever a considerable number of tracks are available. With *sel-sync*, it isn't necessary to record an element on top of an already recorded one. Instead, the initial recorded track is played back through earphones to the instrumentalist or singers who are to overdub themselves. (Most often the second element is an exact duplication of the first, creating a fattened, glowing sound as was demonstrated aurally in recorded example number 22.) While the first element is being played back on one track, the overlay (or overdub) is simultaneously recorded on a previously unused track, all on the original tape; no second generation is necessary. The advantages of this "sound-with-sound" process over true overdubbing are obvious. Because sixteen track tape was used for all the aural examples in this book, every overdub is, in reality, a *sel-sync*.

The word "doubling" is also used interchangeably with overdub or *sel-sync* to refer to either of these recording procedures.

3. SEPARATION Soundproof baffle or "gobos," portable panels designed to absorb sound, can be placed between instruments to prevent leakage between their respective microphones. For extreme separation, isolation booths are used.

4. REMIX Also referred to simply as "mix." The process during which the original tape containing all the raw musical elements is modified and balanced, then transferred to a final master tape.

5. SEL-SYNC (selective synchronization) See "overdub"<sup>02</sup>

6. BOUNCING A "sound-on-sound" procedure closely related to true overdubbing. When a limited number of tracks are available (eight or less) or when additional tracks become necessary (usually to accommodate unforeseen or unplanned elements) an engineer can combine a number of separate tracks (for instance, piano, bass, and drums) and place them together on one track, leaving their previously occupied tracks open. As an example, if a record is being made on a four-track machine, the piano, bass, and drums are initially recording on separate tracks; the fourth track is left open. The engineer then mixes the three instruments together in a satisfactory blend and plays back all three, simultaneously recording them as a single unit, "bouncing" them to the open track. The previously separate entities are now irrevocably combined, forming a single element. Each of their original tracks is now open for further recording.

7. ECHO Most contemporary recording is done in relatively "dry" studios. During a remix session, the engineer will add a suitable amount of echo (or reverberation) to any and all recorded elements in order to enhance the final sound, giving it a natural, well-rounded quality. He does this by playing the signal through an echo chamber before feeding it back to the second recording machine.

8. LEAKAGE If two individual elements are placed close to each other without a sound absorbing "baffle" between them, some sound from one source will usually "leak" or spill over into the microphone of the other.

9. EARPHONES Also called "phones," "headset," or "cans."

10. TAKE An individual recorded performance.

11. PUNCH IN Whenever a portion of a track is not in use, it is generally shut down (the engineer temporarily deactivates the microphone) until the instrumentalist or singer reenters in order to eliminate extraneous noise and leakage. If it becomes necessary, this unused portion of the track can be utilized by "punching in" (inserting) a new element. The engineer puts the recording machine in the "playback" mode and feeds the total aural picture to the instrumentalist or singer through earphones. When the tape reaches the place where the initial element is now silent, the record button is "punched" on that particular track. The tape is then stopped when the interjected statement is completed.

This same technique is used to correct mistakes on any given track of a recording. If, for instance, a particular "take" is successful except for a short phrase during which a performer "fluffed" or "clammed" a few notes, the engineer can "punch in" the performer at the place where the error occurred, thereby erasing the original signal which contained the error, and substituting a new, corrected version. The engineer, when employing this procedure, must be extremely careful—he must know exactly where to "punch in" and "punch out" to avoid any inadvertent erasure of desirable material.

12. \ ILD TRACK Any musical element which is recorded as a separate entity, without reference to the context of the body of the "take" to which it is later added.

13. BOARD Recording console; the control panel which receives the electronic signals generated by all sound sources and from which the engineer governs the recording and mixing of these sound sources.

14. LEVEL The recording console is equipped with a VU (voltage unit) meter for each separate track. As the signal is fed into the board, the needle on each meter indicates the volume level of that particular signal. During the runthrough (rehearsal), the engineer determines the loudest sound he can expect from each element and sets his controls accordingly, limiting the peak level of each signal in order to prevent distortion.

15. POTS Slang for potentiometers, the volume-regulating dials on a recording console. Also referred to as "faders."

16. EQUALIZATION The procedure by which an engineer achieves a desired aural quality by adding or subtracting specific frequencies from any recorded element. Every musical instrument projects a combination of high, low, and mid-range frequencies. Sometimes one of these areas overshadows the others, creating a disturbing overall balance, thereby projecting an undesirable sound. If, for instance, the sound of a string bass is too thick or "muddy," the engineer, during the remix session, can "roll off" a few decibels (units of sound) from the "low end" (bass register) of the aural spectrum, thereby accentuating the higher frequencies and brightening the sound of the instrument.

17. AMBIENCE Natural or realistic room sound. Because most studios are intentionally "dry," ambience is generally restored by adding echo in the remix session.

18. DRY (or "dead") Terms used to describe recording studios which are almost totally devoid of reverberation.

19. PHASING An unusual effect (done in a mix session) which is created by splitting a sound signal and putting it through a phaser which feeds the two halves to a second recorder "out-of-phase," micro-seconds apart, creating a wavery "ghost-image" sound. This effect has been used very successfully by Blood, Sweat and Tears.

**21. TAPE DELAY** A procedure in which a signal is fed through two recording machines simultaneously, slightly out-of-phase (one a split second later than the other), in order to create a very "fat" echo, or, if exaggerated, a "slap-back" or repeated-note effect, quite similar to that achieved by playing an instrument through an echo-plex (tape-loop repeat) unit.

**21. FADE** A simple procedure by which the volume of a sound can be raised (faded in) or lowered (faded out) gradually. Also possible, but a more complicated operation involving several recording machines, is a cross fade-a procedure in which a combination of sounds is faded out as either combination is faded in. This effect can be heard in recorded example number 25.

## CHAPTER NINE: General Advice

I have tried to give the reader my best advice for dealing with specific problems, both musical and mechanical, which confront the recording arranger. I should like to reemphasize the fact that the principles discussed relate *specifically* to the recording medium and are not always applicable to other media—television, films, or live shows. Each of these forms of entertainment presents its own musical problems which necessitate solutions which can differ considerably from those proposed in this volume.

I would like to leave you with a few words of general advice which do not deal with specifics, but are concerned instead with ways in which one can become a better arranger by adopting certain attitudes toward music, both his own and that of other writers.

With regard to his own music, any arranger who expects to improve the quality of his work must be his own most severely demanding critic. He must constantly reevaluate his output, comparing his intentions with the results. Do the voicings sound the way they were intended to? If not, why not? Does the arrangement build logically, creating a satisfying whole? If not, where does it sag? And so on. You must ask yourself these questions, discovering your mistakes in order to avoid repeating them in subsequent scores.



Of the thousands of arrangements I've done, I can honestly say there isn't one I couldn't improve in some way. Once a chart is recorded, of course, it's too late to change it. However, you can examine your score by comparing it with the recorded performance, evaluating its effectiveness for yourself. I do this after every record session. I analyze every page, making notations in red pencil under those sections which didn't work as well as I had hoped ("too many notes in this string chord," "too muddy," "not enough counter-melody," "too busy," etc.) until I uncover the reason for any weakness in voicing, form, continuity, or texture. This helps me to avoid making the same mistake again. Also, I notate those sections which worked better than I had planned ("good clean sound," "nice use of flute," "use this voicing again," etc.), making a mental note to apply the successful principle at the next appropriate opportunity.

It isn't enough to know if an arrangement works or not, you must be able to know why. If you have a teacher who can advise you, you're fortunate; there aren't many good arranging teachers available. If you have no teacher, then you must learn to evaluate your own scores. It takes a lot of effort and concentration, but it can be done. *Learn to trust the judgment of your ear instead of your eye. Music does not exist on paper.*

Along with self-evaluation, an arranger can learn to improve his technique and awareness by *listening constantly* to as much music as possible. Contemporary music (of all kinds) keeps you aware of fresh ideas and new trends—obviously it is important to know what is going on around you in music to prevent stagnation.

It is equally important to listen to recordings of significant older music by those composers, arrangers, and musicians whose influence forms the basis for the music we play and record today. You must realize that music changes, but change doesn't mean improvement. Can Mozart be improved upon? Or Bach? Or Louis Armstrong? Or early Ellington? Of course not; each one in his own way is timeless, providing nourishment for the spirit today just as he did when his accomplishments were first presented to the world.

The contemporary American composer, George Rochberg, in a recent essay has made this same point in these words, "Current biological research corroborates Darwin: we bear the past in us. We do not, cannot, begin all over again in each generation because the past is indelibly printed on our central nervous systems. Each of us is part of a vast physical, mental, spiritual web of previous lives, existences, modes of thought, behavior, and perception—of actions and feelings reaching much further back than what we call 'history.' We are filaments of a universal mind; we dream each others' dreams and those of our ancestors. Time, thus, is not linear, but radial."\*

Each of us is the sum of his musical peers and forebears. We absorb and reflect those influences to which we respond most readily, and then unconsciously (and even sometimes consciously) combine them in various ways to form what we hope will eventually become a unique and original musical style. In any individual musical personality, one can detect those influences which have contributed to the formation of

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a "new sound," which is in reality a combination of older sounds arranged in slightly new proportions.

As an arranger, the more music you are aware of, the better equipped you will be to deal confidently with any assignment presented to you. *Learn to keep your ears and your mind open.*

Today's student arranger is fortunate in having so many study scores available to him at a reasonable cost. Many publishing companies have commissioned top professional arrangers to contribute scores to their school jazz band catalogues. I urge the interested reader to take advantage of the wealth of information available in these scores, particularly those which have also been recorded, where the student "can compare the written notes with the aural result.

Music clinics are another good source of information and inspiration. Students enrolled in these clinics are able to seek immediate practical advice from prominent musicians and arrangers who draw upon their professional knowledge and experience in order to help young aspirants who hope to make careers in music.

The basic message of this chapter then, is a very simple one: *listen, evaluate, analyze, study, ask questions,—realize the need for hard work* in trying to achieve a high level of proficiency as a professional arranger. Good arrangers are, for the most part, made, not born.

Even successful arrangers realize the need for constant study. When I was a young student, I remember buying a record by Bill Holman which featured his compositions and arrangements. Needless to say, I was dazzled and inspired. I heard some great sounds, but I wasn't able to figure out some of the voicings which produced them, so I wrote to Bill, literally begging him to let me borrow one or two of the recorded scores. I didn't receive an immediate reply, but a few weeks later, I met Bill at a rehearsal in New York. He told me he received the letter but I wasn't able to send the scores because Gerry Mulligan had asked to see them first and still hadn't returned them! To me, this was an astonishing revelation—an established writing talent still replenishing his store of knowledge by asking to examine the work of another. That made quite an impression on me, as I hope it will on you.

To those readers who plan to devote their time and energy to raising their arranging ability to the highest possible level, I hope the material in these pages will help you to achieve your goals.

The best of luck to you.

Sincerely,

